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Accounting records for livestock shipping associations

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Accounting Records for Livestock Shipping Associations

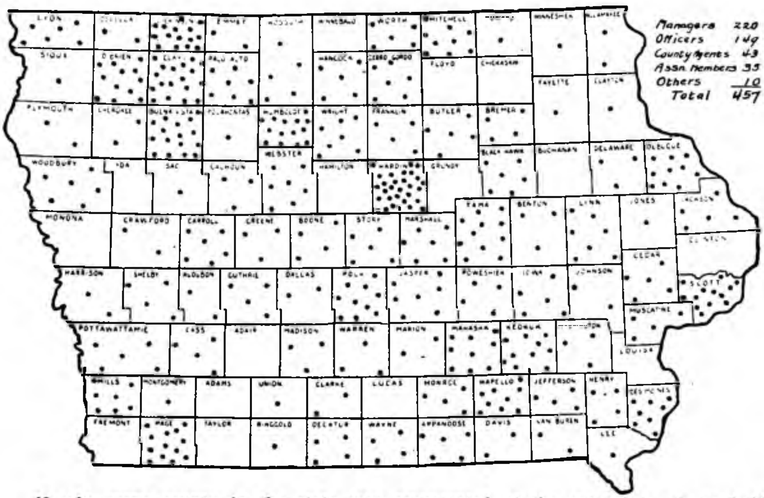
Association managers studying business methods in an extension school.

AGRICULTURAL EXPERIMENT STATION
IOWA STATE COLLEGE OF AGRICULTURE
AND MECHANIC ARTS

C. F. Curtiss, Director

AGRICULTURAL ECONOMICS—
FARM MANAGEMENT SECTION

AMES, IOWA



Nearly every county in the state was represented at the extension schools held by the Extension Service of Iowa State College for managers and officers of livestock shipping associations in 1921-22. These schools are to be held again during 1922-23.

CONTENTS

Accounting Records for Livestock Shipping Associations

By Frank Robotka

The cooperative marketing of livestock has had a greater growth than perhaps any other form of cooperative endeavor. Using Iowa as an illustration, the oldest association in the state in 1920 was organized in 1904. Of all the associations in existence in the state in 1920, about 3 percent were organized before 1910, only 8 percent before 1915, and less than 25 percent before 1918. About 75 percent of the associations in existence in December, 1920, were organized during the years 1919 and 1920.*

Even tho the history of the movement in other states differs in some respects from that in Iowa, by far the greatest development for the country as a whole has taken place within the past five years.

This rapid growth has brought to the forefront a number of problems, most of which may be traced directly or indirectly to the small volume of business, inexperienced management and, in some localities, undesirable competition among the associations.* As a result there is a wide difference between the costs of shipping of the most efficient and the least efficient associations. The problem of the choice of markets is also an important one, especially in the middle west, where in some cases associations are accessible to several different markets.

The solution of many of these problems by a shipping association depends upon the management having a thoro knowledge of the relative advantages of different methods of handling livestock and operating the association, the relative costs of shipping to different markets, the relative merits of different methods of selling and weighing livestock, and the extent to which these factors influence the rate of shrinkage or loss due to dead and crippled animals.

The question of what business policy shall be pursued in connection with these and other problems can be answered intelligently only when the details regarding the different shipments are summarized and the results analyzed. Reliable figures which can be used for this purpose too frequently have not been preserved by shipping associations. In fact, bookkeeping has been neglected more among shipping associations than in most other types of farmers' organizations. Perhaps the chief reason for this situation is that it is a relatively simple matter to organ-

*Iowa Agr. Exp. Sta. Bulletin No. 200, Cooperative Livestock Shipping in Iowa in 1920; E. G. Nourse and C. W. Hammans.

ize and start a shipping association. A group of farmers may meet in the morning, elect a board of directors and a set of officers, hire a manager and start business the same day. The details of management and record-keeping are usually left to be worked out as the necessity arises. As a result, the suggestion that perhaps it might be wise to lock the stable doors is often not made until after the horse has been stolen.

Another explanation for the frequent neglect of the records is to be found in the fact that in the shipping associations each sale, that is, each shipment, is often improperly treated as if it were a completed fiscal period. The entire proceeds are either paid out or reserved at the time of settlement and the shipment is considered a closed incident.

Other causes for the frequent neglect of the records are the small average annual income received by the managers, the lack of standardization of business practices, and the frequent changes of managers and directors. The fact that many of the associations also handle feed and other farm supplies, often on credit, has done much to aggravate the situation.

The adoption of a simple but adequate system of records by the associations generally would be a long step towards increasing efficiency of operation, building up the volume of business, and inspiring loyalty on the part of the members and confidence on the part of the community generally. Furthermore, it would lay the foundation for successful cooperation among the associations. The association which fails to meet any one of these essential conditions is not likely to be in a position to render the kind of service which the community has a right to expect of it.

TYPES OF SHIPPING AGENCIES FOR WHICH SYSTEM IS DESIGNED

The system of records and accounts recommended in this bulletin is based on those methods used by shipping associations in different parts of the country which experience has demonstrated to be sound and practical.* Its operation in a number of states has already demonstrated its adaptability under a wide range of conditions and methods of operation.

The system is specifically designed to meet the needs of associations which make the shipping of livestock their main or only

*Some of the forms are revisions of forms found in actual use, and others, particularly the Shipment Summary Record and the Cash Journal, are original with the author. Final revisions were made at a series of conferences on shipping association business practices and accounting held in Chicago during the summer of 1921, under the auspices of the Illinois Agricultural Association, at which the underlying principles involved and the forms themselves, substantially as here presented, were approved. In addition to the author, the following men took an active part in the discussions on the accounting records: S. W. Doty, Ohio, F. G. Ketner, Ohio, Ralph Loomis, Missouri, T. D. Morse, Missouri, and F. M. Simpson, Illinois.

business. This includes associations which, in addition to shipping livestock, occasionally buy feed and other farm supplies which are unloaded directly from the car and paid for on delivery. When livestock is shipped by farmers' elevators and by produce and supply associations having a warehouse and carrying a stock of supplies, they need only to add to their general ledger the special accounts necessary to handle the livestock business. Such cash books and journals as may be in use would also receive the entries for the livestock transactions. However, all of the detail records and the shipment summary record herein recommended for shipping associations may be used with equal advantage by these other types of associations. Neither the cash journal nor the classification of accounts proposed in this system is designed or recommended for a mercantile or general produce business.

The purpose of each form and the method of using it is explained in the following pages.

WHAT FORMS ARE NEEDED

A system of records to be adequate must provide for the keeping of two principal classes of records: first, the detail records, or working papers; and second, the permanent records.

The detail records are needed as evidence of business transacted and to furnish the authority and data needed in making entries in the permanent records. As they contain the original calculations and figures, they should be preserved carefully and filed conveniently for ready reference and verification in cases of dispute. Unless they are available when an audit is being made, it is practically impossible to prove the accuracy of the books. The detail records included as part of the system and which experience has shown are necessary are:

Form No. 1—Scale ticket.
Form No. 2—Manifest.
Form No. 3—Prorating sheet.
Form No. 4—Member's statement and check voucher.
Form No. 5—Shipment record envelope.

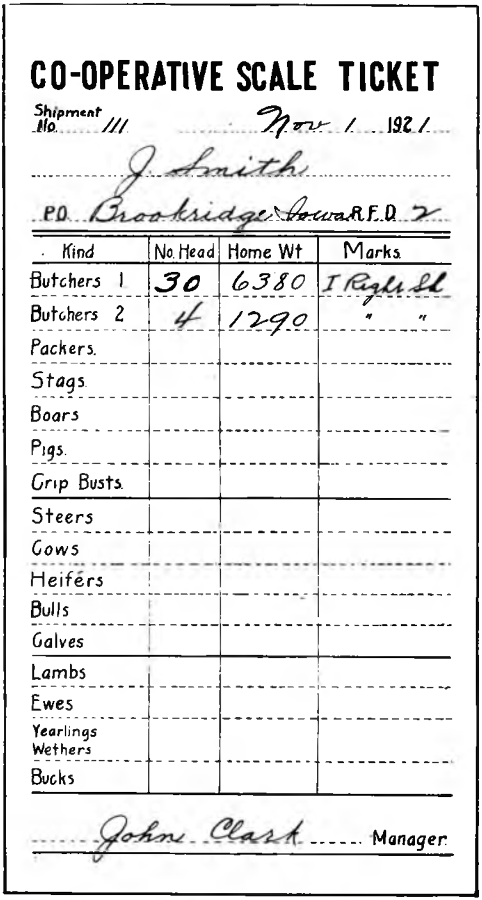
The permanent records are provided for the purpose of preserving the information contained in the detail records and classifying it so as to make it useful to the management, first, in determining the business standing and explaining changes made in it during a fiscal period; and second, in deciding what changes should be made in the choice of markets, methods of handling the livestock, and in the business methods generally. The forms provided are:

Form No. 6—Shipment summary record.
Form No. 7—Cash journal.

In order to illustrate the use of each of these forms, an imaginary shipment, No. 111, will be followed thru the records.

RECEIVING THE LIVESTOCK

A memorandum should be made on the *scale ticket* (Form No. 1) showing how the animals were marked and the number and weight of each kind and grade of livestock delivered by each shipper. The shipment number, date and the name and address of the shipper should also be recorded. The home weight should be obtained separately for each grade of animals. Notations regarding the condition of the animals should be made on the ticket whenever there is reason to suspect that the animals have been fed excessively, or when there is a question as to whether certain ones may be subject to dockage or be sold subject to inspection. The original copy of the ticket should be given to the shipper and the carbon copy retained in the office.



CO-OPERATIVE SCALE TICKET

Shipment No. 111 Nov 1 1921

J. Smith

P.O. Brookridge Iowa R.F.D. 2

Kind	No. Head	Home Wt	Marks
Butchers 1	30	6380	I Right Sl
Butchers 2	4	1290	" "
Packers			
Stags			
Boars			
Pigs			
Crip Busts			
Steers			
Cows			
Heifers			
Bulls			
Calves			
Lambs			
Ewes			
Yearlings Wethers			
Bucks			

John Clark Manager

Fig. 1. Scale ticket (Form No. 1).

A summary of the *scale tickets* for all the livestock included in the shipment should then be made on the *manifest* (Form No. 2) as shown in fig. 2. This form is also issued in duplicate and one copy sent to the commission firm and the other retained in the office. Full instructions should be given regarding the disposition of the returns, prorating and the method of handling the livestock. If the commission firm is to

Shipping Assn. Form No. 2

MANIFEST

OF LIVE STOCK SHIPPED BY

Brookridge Coop. Shipping Assn., Brookridge, Ia.

Shipment No. 111

Consigned to Cooperative Com. Co. Chicago

Date Shipped Nov. 1, 1921

Mail Account Sales to John Clark, Mgr. Brookridge

Railroad C. & N.W.

Send Money to " " " " Iowa

Car Nos. N.C. 14980

Handling Instructions Weigh packers separately; sell according to best judgment; do not prorate.

Loaded 8:00 ~~A.M.~~ P.M.

HOME EXPENSES

Manager's Commission $____

Insurance Fund - - - - $____

Operating Expense - - $____

____ $____

____ $____

____ $____

Total $____

OWNERS	HOGS Butchers 1	Butchers 2	Packers	Stags	Boars	Pigs	Crips Busts	Home Weight	MARKS	CATTLE Steers	Cows	Heifers	Bulls	Calves	Home Weight	SHEEP Lambs	Ewes	Yrlgs. Wthrs.	Bucks	Home Weight
J. Smith	30							6380	I Right Shoulder											
"			4					1290	I " "											
Bill Adams		75						7800	I Back											
"			2					615	I "											
	30	75	6					16085												

Fig. 2. Manifest (Form No. 2).

151

prorate the home expenses also, the rates or amounts of the different items should be recorded in the blanks provided for this purpose in the upper right-hand corner of the form. Much confusion in prorating can be avoided by filling out the manifest carefully and completely.

This completes the record work involved in receiving the livestock and loading it into the car. The results of the sale are necessary before the next step can be taken. This consists of prorating the returns, and is discussed on the following pages.

ACCOUNT SALES FOR SHIPMENT NO. 111

COOPERATIVE COMMISSION COMPANY

Union Stock Yards, Chicago, November 2, 1921

Sold for the account of the Brookridge Cooperative Shipping Association, Brookridge, Iowa

Buyer	Head	Kind	Weight	Mark	Dockage		Price	Amount	Total
					Sows	Stags			
Armour	30	Hogs	6,315	I. R. S.	------	------	$ 10.00	$ 631.50	
Swift	25	Hogs	7,720	I Back	------	------	9.80	756.56	
Armour	6	Pkrs.	1,870	4-I. R. S. 2-I. Back	------	------	9.00	168.30	$ 1,556.36
			15,905						

I. C. 14980, 17,000 at 40c	$38.00	Freight	$ 73.04	
Switching	3.00	Yardage 61 at 12c	7.32	
War Tax	2.04	Insurance	.07	
	$73.04	Feed—5 bu. corn	5.00	
		Inspection	.20	
		Commission	18.00	103.63
		Net proceeds		$ 1,452.73

PRORATING THE RETURNS

It is assumed in this illustration that the manager is to do the prorating. The *manifest* and the *account sales* received from the commission firm furnish all the information needed in connection with the distribution of the returns. The *account sales* received as a result of the sale of the livestock included in shipment No. 111 is shown on this page. Fig. 3 (insert) represents the *prorating sheet* (Form No. 3) as it would appear after the returns have been prorated. The steps followed in arriving at the figures given on the prorating sheet are presented on pages 188 and 189.

Shipping Assn. Form No. 3

PRORATING SHEET

FOR Hogs

SHIPMENT NO. 111

Date Nov. 1921

Shipping Point

Car No. 14980 R. R. C & NW

OWNERS	No.	HOME WEIGHT	Shrink.	MARKET WEIGHT	Dockage Sows	Dockage Stags	Dockage Lbs.	PRICE	AMOUNT	TOTAL	EXPENSE 79 ¢ Cwt.	Member-ship	NET AMOUNT	Ck. No.
J. Smith	30	6380	64	6316				10 —	631 60					
"	4	1290	26	1264				9 —	113 76	745 36	59 88		685 48	1
Bill Adams	25	7800	78	7722				9 80	756 76					
"	2	615	12	603				9 —	54 27	811 03	66 48		744 55	2
	61	16085	180	15905						1556 39	126 36		1430 03	

83.25 cwt.
.79
7.4925
58270
65.7675

16.48
65.77
.71

Overcharge refunded to Bill Adams Jan. 4, 1922 Jno. Clark, mgr.

EXPENSES	
Freight	73 04
Yardage	7 32
Feed and Bedding	5 00
Inspection	22
Insurance	07
Selling Commission	18 00
Market Expense	103 63
Manager's Com.	9 54
Insurance Fund	7 78
Operating Expense	4 00
Federation Dues	50
Home Expense	21 82
Total Expense	125 45
Exp. ¢ per Cwt.	78 87

PROOF OF SETTLEMENT	
Gross Sales Value	1556 36
Insurance Paid	—
Total to be Prorated	1556 36
Total Expense	125 45
Membership	
Total Deductions	125 45
Bal. for Distribution	1430 91
Net Amt. Distributed	1430 03
Undivided { Gain / Loss } Balance	88

Fig. 3. Prorating sheet for shipment No. 111 (Form No. 3).

ISSUING MEMBERS' STATEMENTS AND CHECKS

When the calculations on the prorating sheet have been verified, statements and checks may be issued to the shippers. Form No. 4 is designed to be used for this purpose. The *member's statement* shows the details of the settlement with each shipper as calculated on the prorating sheet. The vouchers will be issued in duplicate and will be numbered consecutively. The statement will bear the same number as the attached check, which number will be inserted in the "check number" column on the prorating sheet as the checks are issued. The original copy will be given to the shipper and the carbon copy will be retained in the office. (See fig. 4).

Shipping Association Form No 4

MEMBER'S STATEMENT NO. 1

BROOKRIDGE COOPERATIVE SHIPPING ASSOCIATION

Shipment No. 111 BROOKRIDGE, IOWA Nov. 2 1921

Account of J. Smith P.O. Brookridge RFD 2

No	Kind	Shrinkage Gain	Market Weight	Dock	Price	Amount	Total
30	Good butchers	64	6316		10 –	631.60	
4	Packers	26	1264		9 –	113.76	

Remarks

Expenses		
Species	Rate	Amount
Hogs	75	59.88
Cattle		
Calves		
Sheep		

Total: 745.36

Expenses: 59.88

Attached Find check for Balance due $685.48

Please ask about anything not understood. Complete statement of each shipment is on file. Tear off before depositing.

NO. 1

BROOKRIDGE COOPERATIVE SHIPPING ASSOCIATION

BROOKRIDGE, IOWA Nov. 2 1921

Pay to the order of J. Smith $685 48/100

Six Hundred Eighty-Five and 48/100 Dollars

BROOKRIDGE STATE BANK,
BROOKRIDGE, IOWA

John Clark
Manager

Fig. 4. Member's statement (Form No. 4).

SHIPMENT RECORD ENVELOPE

The purpose of the *shipment record envelope* is:

1. To provide a convenient means of filing for ready reference all the papers concerning each shipment.
2. To facilitate the classification of the debits and credits arising as a result of each settlement.

After the statements and checks have been issued, the blanks on the envelope should be filled out as indicated in fig. 5 (Form No. 5). The amount to be inserted opposite "Proceeds for livestock sold at market" will be the net proceeds as shown on the account sales. All of the other items will be obtained from the prorating sheet.

It will be noted that the "home statement" on the *shipment record envelope* is also a proof of settlement, but it differs from that on the prorating sheet in that it is a statement of the disposition of the *net* amount of money remitted by the commission firm after deducting the expenses, rather than of the *gross* market value as on the prorating sheet.

Shipping Assn. Form No. 5

Shipment No. 111

SHIPMENT RECORD ENVELOPE

Loaded at Brookridge, Iowa Nov 1 1921
To Cooperative Commission Co. Time Loaded 8:00 AM / PM
Number of Cars 1 No. of Decks 1 Railroad C & NW
Car Nos. SC. 14980

HOME STATEMENT

	(Debits)		(Credits)
Proceeds for Live Stock:		Check Nos. 1 - 2	
Sold at market	1452 73	for Live Stock	1430 03
Sold Locally		Manager's Commission $ 9.54	
Insurance Paid		Insurance Fund $ 7.78	
[illegible] Balance—Loss		Local Car Expense $ 4.00	
		State Assn. dues $ .50	
		Total Home Expenses	21 82
		[illegible]	
		[illegible] Balance—Gain	88
TOTAL	1452 73	TOTAL	1452 73

Fig. 5. Shipment record envelope (Form No. 5).

Each shipment should be assigned a serial number which should be entered in the upper right-hand corner of the envelope. All papers pertaining to the shipment should be filed in the envelope. This will include the carbon copies of the *scale tickets*, a carbon copy of the *manifest*, a copy of the *bill of lading*, the *account sales*, the *prorating sheet*, carbon copies of

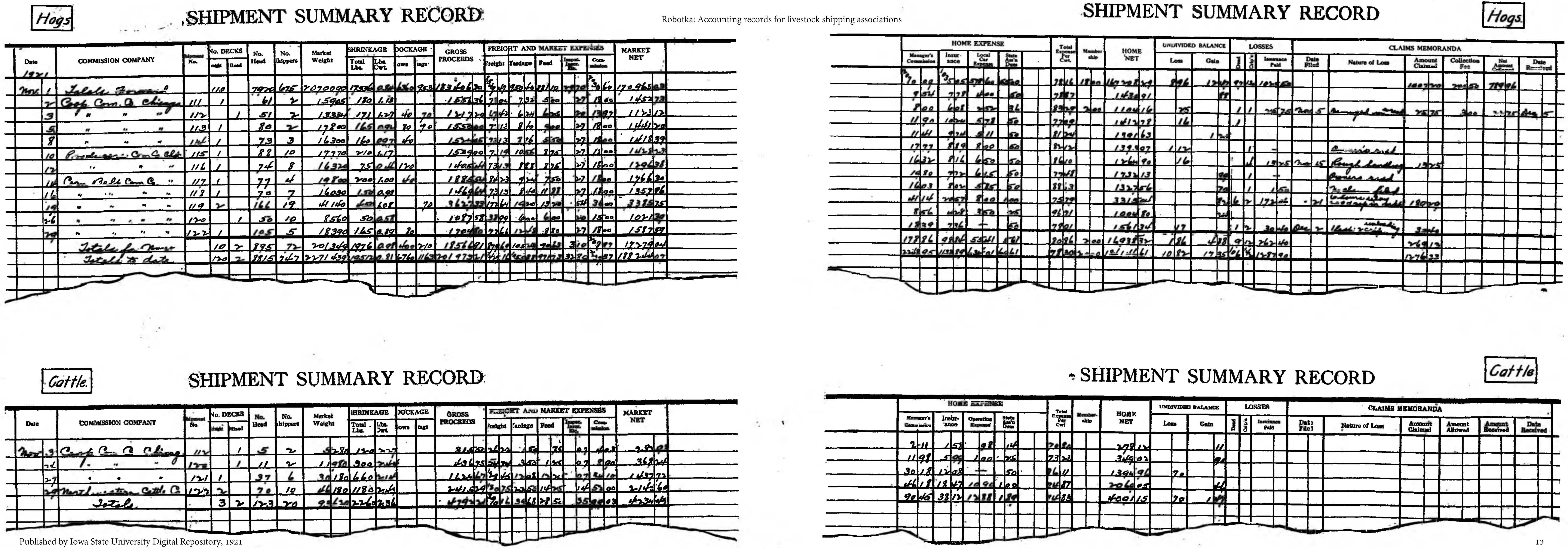


Fig. 6. Shipment summary record (Form No. 6).

the *members' statements*, and any other correspondence or papers pertaining to the shipment.

After settlement has been made, summaries for the shipment should be recorded in the *shipment summary record* and the *cash journal* as illustrated on the following pages.

THE SHIPMENT SUMMARY RECORD

The *shipment summary record* is provided for the purpose of bringing together useful information of a statistical nature regarding the shipments of livestock.

The column headings and the sample entries on Form 6 (Insert fig. 6) indicate what facts are to be recorded on this form and the method of recording them. A summary of each shipment should be entered immediately after settlement has been made.

The figures for shipments No. 111 and No. 112 were taken directly from the manifests and the accounts of sales illustrated in connection with the discussion of these shipments. The summaries consist of the *actual* weights, shrinkage, gross and net sales values, expenses, and home net value, rather than the prorated figures. The amount to be entered in the *home net* column is not the amount actually paid shippers, but it is the net value of the stock after all expenses have been deducted. The amount actually paid shippers consists of the *home net* value plus insurance paid for losses and plus or minus the small amount arising from dropping or adding fractions. The *undivided balance* and the *insurance* paid are the only items taken directly from the prorating sheet.

Separate summaries for hogs, cattle, calves and sheep should be made on separate sheets of the *shipment summary records*. The summaries for the livestock in mixed cars may be entered on the same sheets with those for the livestock in straight car shipments. Each summary should be totaled monthly and the totals to date brought down immediately below the monthly totals.

THE CASH RECORD

The *cash journal* (Form No. 7) serves two very important purposes:

1. It provides a history showing, day by day, all cash receipts and disbursements and other business transacted.

2. It classifies and summarizes the results of these transactions according to the accounts affected, thus making it a simple matter to determine the condition of any particular account or of the business as a whole.

The form (Form No. 7; fig. 10, insert) provides for recording the date and explanation of each transaction and the number of the check issued, if any. The remainder of the form is divided into eleven pairs of columns. One pair of columns (a debit and a credit column) is to be used for each account.

OPERATING THE CASH JOURNAL

The operation of the *cash journal* is best illustrated by examples. Fig. 7 shows how the following receipts of cash should be recorded. The numbers in parentheses correspond to the numbers of the illustrative transactions on pages 197 to 200.

CASH RECEIPTS

(3) November 2. Received check for $1452.73 from Cooperative Commission Company, representing proceeds of Shipment No. 111.

(17) December 1. Received $40 in cash, representing membership fees paid by forty new members.

(21) December 6. Borrowed $100 at the State Bank and gave a 90 day note bearing 7 percent interest.

In transaction No. 3 livestock was exchanged for cash; in transaction No. 17 the privileges of membership were exchanged for cash; in transaction No. 21 an obligation to pay $100 in 90 days was exchanged for cash. In each case the bank account is debited with the amount of cash received and deposited, and in each case that account which produced or parted with the value exchanged for the cash is credited.*

Entries for the following disbursements are shown in fig. 8.

CASH DISBURSEMENTS

(2) November 1. Paid the Jones Feed Store for eight bushels of corn for Shipment No. 111; Check No. 101 for $4.00.

(5) November 2. Paid Eureka Printing Company for Cash Journal binder $5.00 and stationery $5.00; Check No. 103 for $10.00.

(8) November 4. Paid note at State Bank for $200 with interest $16.00; Check No. 105 for $216.

(18) December 2. Paid John Clark, Manager, commission on Shipment No. 112; Check No. 111, for $10.11.

In recording the disbursements the procedure is similar to that involved in recording the receipts, except that in this case the bank account is *credited* and the accounts representing the value received in exchange are *debited*. In transaction No. 2 the *local car expense* account is debited with the value (corn) received for the $4.00 cash expended. In transaction No. 5 personal property and office supplies were received; the cash journal binder, being a permanent piece of equipment, is debited to the *yard and office equipment account,* but the stationery, which will

*As membership fees are usually used for general expenses, they are recorded in the Loss and Gain account as Income. For exceptions, see discussion of Loss and Gain account on pp. 166 and 167.

CASH JOURNAL

	Date		Explanations	Ck No	Bank: Deposits (Dr)	Bank: Checks (Cr)	Live Stock: Settlements (Dr)	Live Stock: Net Proceeds (Cr)	Indebtedness: Paid (Dr)	Indebtedness: Incurred (Cr)	Loss & Gain: Gen'l Exp (Dr)	Loss & Gain: Income (Cr)
(3)	Nov	2	Cooperative Com Co proceeds shpt #111		1452 73			1452 73				
[illegible]	Dec	1	Membership fees (minutes of Nov. 30)		50 00							50 00
[illegible]	Dec	6	State Bank, loan 90 days @ 7%		100 00					100 00		

Fig. 7. Cash journal, showing method of recording cash receipts.

CASH JOURNAL

	Date 1921		Explanations	Ck No.	Bank: Deposits	Bank: Checks	Live Stock: Settlements	Live Stock: Net Proceeds	Manager's Commission: Paid	Manager's Commission: Deducted	Insurance Fund: Losses Paid	Insurance Fund: Deducted	Local Car Expense: Paid	Local Car Expense: Deducted	Federation Dues: Paid	Federation Dues: Deducted	Undivided Balance: Loss	Undivided Balance: Gain
(3)	Nov	2	Cooperative Com Co proceeds shpt #111		1452 73			1452 73										
(6)		3	Settlement for shipment #111	1-2		1430 03	1452 73			9 50		7 78		4 00		50		88

Fig. 9. Cash journal, showing entry for settlement with shippers.

Lefthand Page

CASH

Date 1921		Explanations	Ck No.	Bank Deposits Dr	Bank Checks Cr	Live Stock Settlements Dr	Live Stock Net Proceeds Cr	Mgr's Com'n Paid Dr	Mgr's Com'n Deducted Cr	Insurance Fund Paid Dr	Insurance Fund Deducted Cr
Nov	1	Jones Feed Store [illegible]	[illegible]		4 00						
	2	Eureka Printing Co. [illegible]	[illegible]		10 00						
	4	State Bank [illegible]	105		216 00						
Dec	2	[illegible] Mgr's Com [illegible]	111		10 11			10 11			

Righthand Page

JOURNAL

Local Car Expense Paid Dr	Local Car Expense Deducted Cr	Federation Dues Paid Dr	Federation Dues Deducted Cr	Undivided Balance Losses Dr	Undivided Balance Gains Cr	Equipment Purchases Dr	Equipment Inventory Cr	Indebtedness Paid Dr	Indebtedness Incurred Cr	Loss & Gain Gen. Exp. Dr	Loss & Gain Income Cr	Net Worth Decreases Dr	Net Worth Increases Cr
4 00													
						5 00				5 00			
								200 00		16 00			

Fig. 8. Cash journal, showing method of recording cash disbursements.

be used up in a relatively short time, is debited to *general expense.* In transaction No. 8 an obligation to pay was received (cancelled) to the extent of $200, hence the debit to the *indebtedness account.* Interest expense was incurred to the extent of $16.00, which is debited to *general expense* under *loss and gain.* In transaction No. 18 expense was incurred for manager's services, hence the debit to the *manager's commission account.*

It should be noted that each transaction is entered on a separate line and that at least two accounts are affected. It will also be noted that the debits and credits arising from each transaction are equal.

Every transaction is an exchange of equivalent values—something of value is received and something of equal value is exchanged for it. According to a simple rule, an account is debited when value of the particular kind it represents is received, and it is credited when the same kind of value is parted with.

When settlement is made for a shipment of livestock several accounts are affected. The debits and credits arising from shipment No. 111 are as follows: (See fig. 5.)

Debits		Credits	
Account	**Amount**	**Account**	**Amount**
Livestock	$1452.73	Bank	$1439.93
		Manager's Commission	9.54
		Insurance Fund	7.78
		Local Car Expense	4.00
		Dues—State Federation	.50
		Undivided Balance—gain	.88
	$1452.73		$1452.73

The entry to be made in the Cash Journal would appear as shown in fig. 9. For the sake of clearness, the entry for the receipt of the proceeds is also recorded. The two entries, however, represent two separate and distinct transactions.

The *livestock account* is debited, indicating that the gross amount due shippers from the sale of livestock has been distributed. The *manager's commission account*, the *insurance fund account,* the *local car expense account* and the *federation dues account* are each *credited* with the amount deducted for each specific purpose. The amount paid by checks is credited to the *bank account.* As complete distribution was not made, the *undivided balance account* is credited with the 88 cents not distributed.

TRANSACTIONS WHICH DO NOT INVOLVE THE CASH ACCOUNT.

In the illustration given above, cash was either received or disbursed in each transaction. Altho this will be the case in the large majority of transactions, it is occasionally necessary to record transactions in which cash is neither received nor paid out. For illustrations see transactions Nos. 25 to 28 on page 200, and entries for same dated December 31 in fig. 10 (insert).

ILLUSTRATIVE TRANSACTIONS

In order to further illustrate the operation of the *cash journal*, the business of an imaginary shipping association for the months of November and December, 1921, together with a summary of the previous ten months' business, is recorded on the accompanying *cash journal* pages. (A list of these transactions is given on pp. 197 to 200). It will be noted that the first entry records the accumulated debits and credits in the accounts resulting from the business transacted previous to November 1, 1921.* This entry is then followed by the entries for the business transacted during November.

At the end of the month, the totals of all the columns are brought down on the same line and are carried forward to the end of the year. However, in preparing the statement of resources and liabilities at the end of each month, the balances in the different accounts should be determined and only these used. (See statement of affairs for Nov. 30, 1921, on p. 199.)

INFORMATION NEEDED TO DETERMINE THE BUSINESS STANDING

In the case of many associations the records go no farther than the prorating sheet, and information as to their business standing or the condition of their different accounts is not available. It is necessary, if proper accounting is to be had, that the results of the individual shipments be accumulated until the final reckoning at the end of the fiscal period, or oftener. As the estimates for insurance and overhead expenses are often intentionally made higher or lower than what it is considered the actual costs will be, this final reckoning will reveal the excess or deficiency of such estimates and bring to light other items which may have been overlooked. Proper disposition can then be made of the excess reserved, or provision made for taking care of the deficiency.

Furthermore, every association transacts some business which has reference to no particular shipment. Equipment is bought,

*As the management is responsible for the condition of the business as revealed by the books, the manager or secretary should insist that the statement upon which the opening entry is based be approved by the board of directors. The books should be examined by an auditing committee at intervals of from one to three months, and a thoro audit by a skilled accountant should be made each year, or each time a change in management is made. Strict adherence to this rule would not only be a protection to the management and to the membership but it would tend to keep those responsible for the affairs of the association in intimate contact with the business.

Iowa State College Shipping Association Form No. 7

CASH JOURNAL

No.	Date 1921		Explanations	Ck. No	Bank Deposits Dr	Bank Checks Cr	Live Stock Settlements Dr	Live Stock Net Proceeds Cr	Mgr's Commission Payments Dr	Mgr's Commission Deductions Cr	Insurance Fund Payments Dr	Insurance Fund Deductions Cr
1	Nov.	1	Totals forward as per minutes of Oct. 31		172655 49	172079 47	170965 03	170965 03	2070 09	2070 09	1226 00	2025 51
2		1	Jones Feed Store, 8 bu. corn Shpt. #111	101		4 00						
3		2	Cooperative Com. Co. Proceeds " "		1452 73			1452 73				
4		2	Paid Bell Teleph. Co. Nov. bill	102		2 50						
5		2	Eureka Printing Co. Acct. Book $5.00 Sta. $5.00	103		10 00						
6		3	Settlement for Shipment #111	1-2		1430 03	1452 73			9 54		7 78
7		3	John Clark, Mgr's Com. Shpt. #111	104		9 54			9 54			
8		4	State Bank paid note $200. Int. $16.00	105		216 00						
9		5	Smith Hardware Co. Rope for Shpt. #112	106		1 00						
10		5	Farmers Elevator Co. 40 bu. corn	107		20 00						
11		6	Cooperative Com. Co. Proceeds Shpt 112		1406 05			1406 05				
12		7	Tribune Printing Co. Circulars	108		4 00						
13		7	National Surety Co. premium Mgr's bond	109		37 50						
14		7	Settlement Shipment #112	3-4		1408 17	1406 05			10 11	25 75	7 66
15		25	U.S. Office Equipment Co. Adding Mach.	110		250 00						
16		30	(Summary of Shipments #113–#122)	5-30	18654 75	18760 33	18654 75	18654 75	249 66	249 66	236 65	121 52
			Totals		196169 02	196232 54	192478 56	192478 56	2329 29	2339 40	1488 40	2162 47
17	Dec.	1	Cash membership fees (minutes of Nov 30)		40 00							
18		2	John Clark, Mgr's Com. Shpt. 112	111		10 11			10 11			
19		5	C & NW Ry. Proceeds of claim of Nov 5		25 75							25 75
20		6	Stephen Stone attorney's fees claim	112		3 00					3 00	
21		6	State Bank Loan for 3 mos @ 7%		100 00							
22		9	Sinclair Oil Co. 10 gals gasoline	113		2 00						
23		15	J Andrews, redeemed Stock Certificate no. 24	114		5 00						
24		31	State Assn. dues for 1921-125 cars @ 50¢	115		62 50						
			Fiscal Year Adjustments									
25		31	Depreciation on Equipment									
26		31	Transfer from Insurance Fund to Loss + Gain								196 82	
27		31	Undivided Balance closed to Loss + Gain									
28		31	Loss + Gain closed to net worth									
			Totals		194334 77	194315 15	192478 56	192478 56	2339 40	2339 40	1688 22	2188 22
			Subtractions		194315 15		—	—	—	—		1688 22
	1922		Balances carried forward		19 62		—	—	—	—		500 00
29	Jan	2	Bill Adams, refund of overcharge Shpt. 111	116		71						

No.	Local Car Expense Payments Dr	Local Car Expense Deductions Cr	Federation Dues Paid Out Dr	Federation Dues Collected Cr	Undivided Balance Losses Dr	Undivided Balance Gains Cr	Equipment Purchases Dr	Equipment Inventory Decreased Cr	Indebtedness Paid Dr	Indebtedness Incurred Cr	Loss and Gain Gen'l Expense Dr.	Loss and Gain Income Cr	Net Worth Decreases Dr	Net Worth Increases Cr
1	578 60	578 60		55 00	8 96	12 47	1000 00			300 00		18 00		400 00
2	4 00													
3														
4											2 50			
5							5 00				5 00			
6		4 00		50		88								
7														
8									200 00		16 00			
9	1 00													
10	20 00													
11														
12											4 00			
13											37 50			
14		3 50		50	14							2 00		
15							250 00							
16	60 79	60 79		6 50	2 31	5 36								
Totals	664 39	646 89		62 50	11 41	18 71	1255 00		200 00	300 00	65 00	20 00		400 00
17												40 00		
18														
19														
20														
21										100 00				
22											2 00			
23													5 00	
24			62 50											
Fiscal Year Adjustments														
25								50 00			50 00			
26												196 82		
27					7 30							7 30		
28											147 12			147 12
Totals	664 39	646 89	62 50	62 50	18 71	18 71	1255 00	50 00	200 00	400 00	264 12	264 12	5 00	547 12
Subtractions	646 89		—	—	—	—	50 00			200 00	—	—		5 00
Balances carried forward	17 50		—	—	—	—	1205 00			200 00	—	—		542 12
29					71									

Fig. 10. Cash journal (Form No. 7).

claims are collected, money is borrowed or a note paid, office supplies are purchased, the premium on the manager's bond is paid, some farm supplies may be shipped in, and other business transacted. These transactions affect the standing of the business just as much as those which relate directly to specific shipments.

All of the business transacted, whether it affects cash or property, debts, reserves, expenses, net worth, or what not, should, therefore, be brought together and classified according to the accounts affected. Only when this is done will the association be able at all times to answer the question, "How do we stand?" with any degree of assurance that it is answered correctly.

RESOURCES AND LIABILITIES

The business standing of an individual or a business concern is revealed by the statement of resources and liabilities. In the case of a farmer purchasing a farm for $50,000 and paying $30,000 in cash and giving a mortgage note for $20,000, the statement of resources and liabilities would appear as follows:

Resources		**Liabilities**	
Farm	$50,000	Notes payable	$20,000
		Net Worth	
		Owner's investment	30,000
	$50,000		$50,000

This statement shows, first, that the farm business, as a unit in itself distinct from the owner, is in the possession of property valued at $50,000. In the second place, the statement shows the kinds and the amounts of the different equities in the business. Note holders have a prior claim of $20,000 against the undivided property of the farm business. The remainder of $30,000 represents the owner's equity.

If the owner had invested $40,000 instead of $30,000, the other items remaining the same, the owner's claim against the business would be worth only 75 cents on the dollar, as there would be only $30,000 left after paying the note holders, who have a prior claim. The farm business in this case might be thrown into bankruptcy by the creditors. On the other hand, if the property was valued at $60.000, the other items remaining the same, there would be $40,000 left after paying off the note holders. In this case, each dollar of the owner's investment would be worth 133 1-3 cents, and the financial condition of the farm would be considered very favorable.

A similar procedure is followed in determining whether or not any other kind of business concern is worth 100 cents on the dollar. An illustrative statement representing the affairs of an imaginary shipping association is presented herewith:

STATEMENT OF RESOURCES AND LIABILITIES
BROOKRIDGE COOPERATIVE SHIPPING ASSOCIATION

November 1, 1921

Resources			
Cash		$ 576.02	
Yard and office equipment		1,000.00	
			$1,576.02
Liabilities			
Notes payable	$300.00		
Federation dues	55.00		
Insurance fund	799.51		
Undivided balance	3.51		
		$1,158.02	
Net Worth			
Capital stock	$400.00		
Surplus (undivided profits)	18.00	418.00	$1,576.02

It will be noted that the resources consist of cash and equipment amounting to $1,576.02 and the liabilities amount to $1,158.02, consisting of outstanding notes, dues owing a state association, the reserve for insurance and the undivided balance. The resources exceed the liabilities by $418.00, which amount represents the net worth of the association. As only $400 was put into the business originally, the difference of $18 between the total net worth of $418 and the $400 originally paid into the business represents surplus profits left in the business.

It will also be noted from this statement that the investment in the business came from stockholders, rather than from an individual owner, as in the case of the farm business. An association which is not incorporated is regarded as a partnership, in which case all of the members would be the joint owners.

Each of the subdivisions in the statement shown above represents a separate account in the *cash journal;* in fact, it is from the accounts in this book that the information for such statements is obtained.

The accounts which a particular association will need will depend upon the character of the business, if any, which it combines with livestock shipping. Ordinarily all shipping associations will need the following accounts:

1. Bank
2. Livestock
3. Manager's commission
4. Insurance fund
5. Local car expense
6. Undivided balance
7. Loss and gain
8. Net worth

Other accounts which will frequently be needed are:

9. Federation dues (State or district federation)
10. Yard and office equipment
11. Indebtedness (or notes payable)
12. Merchandise

Each of these accounts is described and illustrated fully on the following pages.

DESCRIPTIONS OF THE ACCOUNTS

BANK

Debit:	Credit:
(1) With the available balance of cash in the bank as shown by the balance sheet at the time of opening the books.	(1) With an overdraft, if any, at time of opening the books.
(2) With all checks, drafts and currency received from livestock and other sources, as well as proceeds of notes given for loans, as these items are deposited.	(2) With the amounts of all checks drawn. The checks issued to shippers will be entered in total for each shipment.

It is good practice to handle all funds thru the bank. All receipts of cash from whatever source will accordingly be entered in the *deposits* (*debit*) *column* and as checks are issued, the amounts will be entered in the *checks* (*credit*) *column*. A debit balance indicates the amount of available funds in the bank and is an asset. A credit balance indicates an overdraft and is a liability.

All cash should be recorded in one bank account in the *Cash Journal*, even tho the cash is divided into different funds at the bank or is carried in more than one bank. Where it is desired to divide the business with two banks it is preferable to change banks one or twice a year rather than carry the funds in both banks at the same time.

LIVESTOCK

Debit:	Credit:
(1) With net proceeds prorated at the time of the settlement for each shipment.	(1) With the net proceeds received from commission firms for livestock shipped.
(2) With the purchase price of livestock purchased outright.	(2) With the amounts received for livestock sold locally.

A credit balance in this account will usually represent proceeds which have not yet been prorated to shippers and is a liability. However, if livestock is bought outright the account will show a gain if the credits exceed the debits, and a loss if the debits exceed the credits. At the end of the fiscal year, any such gain or loss will be closed to the loss and gain account.

MANAGER'S COMMISSION

Debit:	Credit:
(1) With amounts of salary or commission as payments are made. (2) With amounts paid manager in reimbursement of amounts advanced by him for association expenses.	(1) With commission earned at the time settlement is made for shipment of livestock. (2) With amounts advanced by manager for association expenses at the time the advances were made.

Where the manager is paid on the commission basis, the account will balance if he has been paid in full. A credit balance represents the amount of unpaid commission due the manager. If the manager is paid on a salary basis, the debit balance will represent the amount of expense due to manager's salary, which will be closed to the loss and gain account at the end of the year.

INSURANCE FUND

Debit:	Credit:
(1) With payments to shippers for losses. (2) With payments of attorney's fees for collecting claims when such fees are paid by an association check.	(1) With amount deducted from the proceeds of each shipment as the insurance charge. (2) With amounts received in settlement of railroad claims.

The insurance fund account will usually show an excess of credits over debits, in which case the balance indicates that more has been reserved than actually paid because of losses.

Such a credit balance is a liability from the point of view of the association, as it represents deductions from returns due members in excess of the needs for insurance purposes. In a sense, this excess is held in trust for the members and in case of dissolution would be prorated back to them.

As the financial strength of an association depends to a considerable extent upon its ability to meet ordinary losses promptly without borrowing, it is important that a conservative credit balance be maintained in the *insurance fund account.* After a balance of from several hundred to a thousand dollars (depending on the volume of business and other conditions) has been accumulated, the charge for insurance should be reduced to a point which will maintain the desired balance in the fund. The practice of some associations to draw on the *insurance fund* for overhead and miscellaneous expenses is not to be commended, as the protection to members is likely to be impaired by an undue drain on this account. Where the membership fees are not adequate, special provision should be made for meeting overhead expenses, either by making a separate deduction for this purpose or by splitting up the total charge into two parts, when a lump deduction is made for all purposes in general, one to be specifically reserved for insurance purposes and the other part for other specific or general purposes. In order to avoid the possibility of using the insurance funds for purchases of equipment or otherwise rendering it unavailable for the payment of losses, some associations set aside the cash reserved for insurance in a separate deposit account in the bank, or even invest part of it in securities of a readily salable sort.

LOCAL CAR EXPENSE

Debit:	Credit:
(1) With amounts paid for feed, bedding, partitions and other materials used in preparing cars for shipment.	(1) With deductions from proceeds from sales of livestock to cover any expense incurred in preparing cars for shipment, including local feed, bedding, partitions, rope, nails, etc.

The *local car expense* account will balance provided the deductions from returns exactly equal the expenses incurred in preparing cars for shipment. It sometimes happens, however, that supplies, such as feed, bedding, lumber for partitions, etc., are bought in quantities and charged against shipments as used. In such cases, the "payments" at a given time will exceed the "deductions" and the balance will represent the value of unused supplies on hand.

UNDIVIDED BALANCE

Debit:	Credit:
(1) With losses on shipments when more is distributed than the actual balance available for distribution.	(1) With gains on shipments when less is distributed than the actual balance available for distribution.

Much time is often wasted in attempting to distribute returns to the cent. In calculating the shrinkage and expenses, it is much more practicable to use rates figured to the nearest whole number or convenient fraction. Furthermore, when carloads of mixed grades are sold for a flat sum, it is necessary to "price the car up and down" according to grades when making returns to members. In all of the above cases, the amount prorated may differ slightly from the actual returns. The difference is to be carried in the *undivided balance* account. Some of the older associations have adopted a flat rate of expense based on past experience which is applied on all shipments of a given species of livestock over a considerable period. Gains or losses occurring on individual shipments in such cases will also be entered in this account. At the end of the year the net balance should be closed to loss and gain, or otherwise disposed of as decided by the board of directors.

The expenses of the ordinary shipping association fall into two classes, namely, 1st, expenses incurred in preparing cars for shipment, which are not borne by the association but charged to the shippers and deducted from their returns; 2d, expenses which are not chargeable against any particular carload, or the "overhead" expenses, such as telephone, stationery and printing, advertising, interest on borrowed money, premium on manager's

LOSS AND GAIN

Debit:	Credit:
(1) With general expense, such as postage, stationery, telephone, premium on manager's bond, interest paid, taxes and similar items. (2) Losses suffered in handling supplies or buying livestock. (3) With the balance in the Undivided Balance account at the end of the year when the overpayments exceed the underpayments. (4) With the net gain at the end of the fiscal year when same is distributed in accordance with board action.	(1) With deductions from proceeds from shipments of livestock to cover over-head expenses. (2) With membership fees.* (3) With extra charges made for handling stock of non-members. (4) With profits resulting from handling supplies or buying livestock. (5) With the balance in the Undivided Balance account at the end of the year when the underpayments exceed the overpayments. (6) With net loss at the end of the fiscal year when same is transferred to the net worth account.

bond, and similar items. All such "overhead" expenses and any other items not charged to shippers and deducted from returns should be entered under "General Expense" in the *loss and gain account.*

The income from which such expenses are met will be entered under *income* in this account. This income will usually consist of membership dues,* in some cases supplemented by a special charge against shipments for this purpose. At the end of the fiscal year, after the necessary adjustments have been made, the *loss and gain account* will show either a net gain or a net loss, which should then be carried to the *net worth account,* or otherwise distributed as decided by the board of directors.

NET WORTH

Debit:	Credit:
(1) With the excess of liabilities over assets at the time of opening the books. (2) With the par value of shares of stock retired, or memberships redeemed where such memberships are redeemable. (3) With the net loss transferred from the Loss and Gain account at the end of the fiscal year.	(1) With the par value of shares of stock outstanding at the time of opening the books. (2) With the excess of assets over liabilities at the time of opening the books. (3) With the par value of additional shares of stock sold. (4) With the membership fees paid in, in case of associations incorporated under laws which hold memberships redeemable. (5) With net profits transferred from the loss and gain account at the end of the year.

It seldom occurs that the total resources of a concern exactly equal the total liabilities. If the resources at the time of opening the books exceed the liabilities, a free surplus exists. This

*If the law under which the association is incorporated regards membership fees as capital contributions the same as capital stock, the amounts so collected should be credited to the Net Worth account, as they represent the members' equity in the business. The same procedure should be followed even tho not incorporated, when more than a nominal fee is collected for the purpose of purchasing and installing scales, equipping yards or for other similar purposes.

balance represents the proprietors' (members' or stockholders') equity or interest in the business and will be entered on the credit side of the *net worth account*. Sales of shares of capital stock, if any, will also be entered in this column. If the liabilities or debts, however, exceed the resources, the balance will represent the amount by which the association is unable to meet its obligations one hundred cents on the dollar. The balance in this case will be entered in the debit column. At the end of the fiscal year the stockholders' or members' equity will be increased or decreased by the amount of the net gain or net loss shown by the *loss and gain account*.

In addition to the above, the following accounts will frequently be needed:

FEDERATION DUES

Debit:	Credit:
(1) With payments of current dues to state or district federation on account of membership in such federations.	(1) With deductions from proceeds of the sale of livestock for federation dues.

Associations which are members of a state or district federation of shipping associations, the fees for the membership in which are collected out of the proceeds of shipments, will need a *federation dues account*. Any excess of the total collected over the amount paid out will represent the amount due the federation at any given time.

YARD AND OFFICE EQUIPMENT

Debit:	Credit:
(1) With the value of equipment at the time of opening the books. (2) With the purchase price of additional equipment bought. (3) With the freight and installation costs of equipment.	(1) With cost value of property sold or otherwise disposed of. (2) With estimated depreciation at the end of the fiscal year.

Space is provided for two additional accounts. Associations which have invested money in yard and office equipment should use one pair of these columns for keeping track of such property.

INDEBTEDNESS

Debit:	Credit:
(1) With payments made in settlement of outstanding obligations.	(1) With the amount of outstanding obligations at the time of opening the books. (2) With subsequent obligations incurred because of money borrowed or supplies purchased on account.

Where indebtedness is incurred an account should be opened with *indebtedness* or *accounts payable* which will be credited with any obligations incurred and debited when they are paid.

MERCHANDISE

Debit:	Credit:
(1) With the invoice price of supplies bought. (2) With freight and other direct handling charges, such as extra labor, etc.	(1) With amounts received for supplies, whether collected in advance or on delivery of supplies.

If supplies of any kind are handled, an account should be opened with *merchandise,* which will be debited with the purchase price, freight and any other direct costs incidental to the handling of such merchandise. The account will be credited with sales. When all of the merchandise has been sold the account will show either a gain or a loss, which should be transferred to the *profit and loss account* or prorated back to members at the end of the year.

If a larger number of accounts is needed than space is provided for, a short sheet providing space for six to eight accounts may be inserted between the left-hand and the right-hand pages of the *cash journal.* However, where the number of accounts needed is relatively large, a ledger should be used and the form of the *cash journal* modified accordingly.

ADVANCES TO SHIPPERS

Some associations regularly make advances to shippers, if requested, at the time of the delivery of livestock. Where this is the case, one of the blank pairs of columns in the *cash journal* should be headed *advances.* All advance checks should be recorded in the cash journal as all other checks are recorded, and the amounts charged to the *advances account.* Deductions for advances will then be made on the prorating sheet, the amount being entered, with an appropriate notation, in the *membership* column. The advances deducted in making settlement will appear as one of the deductions on the credit side of the *home statement* on the *shipment record envelope.* The *advances account* will be credited when the entry for the settlement is made in the cash journal. As advances do not affect the value of livestock or the expenses of shipping, no record of the advances need be made in the shipment summary record.

SALE SUBJECT TO INSPECTION

Separate returns are usually rendered to cover animals sold subject to inspection, even tho the terminal weight of such animals will have been included in determining the expense rate on the remainder of the shipment. A separate *prorating sheet* should be filled out when the returns for such animals are received, and a separate entry made in the *cash journal* similar to that made for regular settlements. All the papers concerned in such sales should be pinned together and filed in the envelope with the other papers for the shipment.

When animals sold subject to inspection are condemned it sometimes happens that their tankage value does not cover the expenses. In such cases, the shipper owes the association the difference. As no debit will consequently appear in the *livestock account*, when the cash journal entry is made, the *advances account* should be debited for the amount due from the shipper. When such amounts are collected either in cash or by deduction from a subsequent shipment, the *advances account* will be credited.

THE NEED OF PERMANENT RECORDS

Even when ordinary care is taken to file and preserve the papers containing information regarding the business transacted, it seems to be the general experience that before long many or all of the papers are mislaid or destroyed. Unless the data they contain have been recorded in permanent book form, the association is unable to show what business has been done in the past or to verify the details of transactions regarding which questions might subsequently arise.

Embarrassing situations traceable to this lack of records have developed frequently in the past. In a recent instance, for example, a question arose as to whether or not the funds of the association had been properly accounted for. Neither the secretary nor the manager had preserved a permanent record of the shipments or other business done. As a result, the association was unable to prove that the funds had not been properly accounted for, nor could the manager prove that he was free from blame. The fact that it was the practice to completely "check out" each shipment did not save the situation. Many an honest manager and officer has found himself in an exceedingly embarrassing position because of his failure to keep the few books needed to enable him to prove conclusively that his record is clear. The fidelity insurance companies usually require that proper records be kept as a condition to bonding officials responsible for the funds of an association.

In view of the responsibility which rests upon the manager and the board of directors in such matters, they should insist for their mutual protection that a complete, permanent record be made of all business transacted. And they should insist that this record be kept in the same manner from year to year, irrespective of changes in the management. Furthermore, they should insist that all accounts of sales and other detail supporting records and working sheets be preserved so as to make possible a verification of the entries made in the *shipment summary record* and the *cash journal*. Only when kept in this way will the records adequately serve as a protection to the manager, the directors and the members, and as a reliable guide in determining business policies.

RECORDS AS A GUIDE TO MANAGEMENT

Mismanagement is one of the most frequent causes of failures in business generally. The remedy for a large part of mismanagement is to substitute facts for guesswork in the determination of business policies. The judicious use of the figures covering the business since the association started would eliminate much of the guesswork. For this purpose summaries are needed showing the values, numbers, weights, shrinkage, itemized expenses, losses and other information resulting from the sale of livestock. These data are also needed in calculating averages which throw light on the relative economy of different methods of handling stock, the relative advantages or disadvantages of shipping to different markets, and to direct the attention of the management to variations in the rates of expenses, losses and shrinkage, with a view to ascertaining the causes of such variations and reducing these costs to a minimum. Each manager believes he is doing the best possible, until he learns that others have done better. If all kept the essential figures alike, it would be simple to compare notes and see "how it was done."

The relatively small amount of time required to keep these records will be found to have been well spent when information is desired regarding the results of operations. The time required in the preparation of the annual report could be reduced to the few moments needed to copy totals from records.

The value of these figures for publicity purposes is frequently overlooked. Many associations obtain valuable publicity by submitting their annual and monthly reports to the local papers, to the county agents, to federations of cooperative livestock shippers and by mailing mimeographed copies to the members.

Illustrations will be found on the following pages of the different schedules which a satisfactory report should include. These schedules consist of the following:

A. Financial statements.
   1. Statement of resources and liabilities.
   2. Statement of income and expense.

B. Statement of results of shipping.
   1. Volume and value of livestock shipped.
   2. Analysis of expenses and deductions.
   3. Analysis of shrinkage.
   4. Analysis of losses.

C. Report of moneys handled.
   1. Cash receipts and disbursements.
   2. Bank reconciliation.
   3. Analysis of undivided balance account.
   4. Analysis of insurance fund account.

ANNUAL REPORT OF THE BROOKRIDGE COOPERATIVE SHIPPING ASSOCIATION

For the Fiscal Year ending Dec. 31, 1921.

A. FINANCIAL STATEMENTS

A-I. Statement of Resources and Liabilities

Resources			Liabilities		
Cash in bank		$ 19.62	Notes payable		$ 200.00
Prepaid expenses (Feed)		17.50	Insurance fund		500.00
Equipment	$1255				
Less depreciation	50				$ 700.00
		1,205.00	**Net Worth**		
			Capital stock paid in		$ 395.00
			Surplus beginning of year	$000.00	
			Add net profit for current year	147.12	
			Surplus Dec. 31, 1921		147.12
		$1,242.12			$1,242.12

A-II. Statement of Income and Expenses

Net proceeds received for livestock			$192,478.56
Railroad claims collected, gross			1,016.21
Total			$193,494.77
Net amount paid shippers for undamaged stock		$188,230.46	
Losses paid		1,287.90	
Total paid shippers		$189,518.36	
Add increase carried forward in insurance fund held for benefit of shippers		500.00	
Total accruing to shippers			190,018.36
Balance available for expenses			3,476.41
Add cash memberships received			40.00
Total			$ 3,516.41
Expenses			
Manager's commission		$ 2,339.40	
Local car expenses		646.89	
Attorney's fees		203.50	
Federation dues		62.50	
Total		$ 3,252.29	
Premium on manager's bond	$ 37.50		
Interest	16.00		
Depreciation	50.00		
Printing and stationery	9.00		
Telephone	2.50		
Miscellaneous	2.00	117.00	
Total all expenses			3,369.29
Net profit carried to surplus			$ 147.12

B. STATEMENT OF RESULTS OF SHIPPING

B-I. Volume and Value of Livestock Handled

Kind of Livestock	Number of Carloads This Yr.	Number of Carloads Last Yr.	Number of Head This Yr.	Number of Head Last Yr.
Hogs	120	92	8,815	6,610
Cattle	3	7	123	288
Mixed	2	5	....	....
Total	125	104	....	....

	Hogs	Cattle
Gross sales value	$201,973.21	$ 4,792.21
Added out of insurance fund	1,287.90	
Total	$203,261.11	$ 4,792.21
Total expenses and deductions	17,833.13	701.83
Paid shippers*	$185,427.98	$ 4,090.38

B-II. Analysis of Expenses and Deductions

		Hogs		Cattle
Freight, switching, war tax		$ 9,429.16		$ 390.16
Feed		971.73		28.50
Yardage		1,055.88		39.68
Selling commission		2,239.57		99.03
Inspection and insurance		32.80		.35
Total freight and terminal expense		$ 13,729.14		$ 557.72
Manager's commission		$ 2,248.95		$ 90.45
Deducted for insurance		1,133.89		38.12
Local car expense		634.01		12.88
State association dues		60.61		1.89
Membership fees deducted		20.00		......
Undivided balance—Gains	$17.35		1.47	
Losses	10.82	6.53	.70	.77
Total Home Deductions		$ 4,103.99		$ 144.11
Total all Exp. and Deductions		$ 17,833.13		$ 701.83

B-III. Analysis of Shrinkage.

	Hogs	Cattle
Home weight	2,290,951	95,880
Market weight	2,271,439	93,620
Shrinkage, lbs.	19,512	2,260
Shrinkage, lbs. per cwt.	0.86	2.4
Average value of shrinkage, cents per cwt. (market wt.)	7.034†	10.6†

B-IV. Analysis of Losses—Hogs.

	Hogs
Number of dead	106
Number of cripples	142
Total damaged	248

*Home net value less undivided balance-gain plus insurance paid.
†For method of calculation, see footnote on page 175.

Losses paid		$1,287.90
Claims collected, gross	$1,016.21	
Less collection fees	203.50	
Net amount of claims collected		812.71
Net losses		$ 475.19
Net losses, cents per cwt. market weight		2.09
Net losses, percent of sales value		0.235

C. REPORT OF MONEYS HANDLED

C-I. Statement of Cash Receipts and Disbursements

Receipts

Cash balance Jan. 1, 1921			$........	
Received for livestock:				
Hogs		$188,244.07		
Cattle		4,234.49		
			$192,478.56	
Capital stock sold			400.00	
Membership fees, cash			40.00	
Borrowed at bank			400.00	
Claims collected			1,016.21	
Total receipts				$194,334.77

Disbursements

Net value of livestock:				
Hogs		$184,166.61		
Cattle		4,091.15		
Total		$188,257.76		
Less:				
Membership fees	$20.00			
Undivided balance	7.30	27.30		
Paid shippers for undamaged livestock		$188,230.46		
Losses paid		1,287.90		
Total paid shippers			$189,518.36	
Scales and scale house			1,000.00	
Adding machine			250.00	
Account book			5.00	
Manager's commission			2,339.40	
Feed, bedding, etc.			664.39	
Attorney's fees, collecting claims			203.50	
Federation dues			62.50	
Paid for certificate of capital stock			5.00	
Paid note at state bank			200.00	
Premium on manager's bond			37.50	
Printing and stationery			9.00	
Interest			16.00	
Telephone			2.50	
Miscellaneous expense			2.00	
Total disbursements				$194,315.15
Balance				$ 19.62

C-II. Bank Reconciliation

Balance as per bank statement.....			$ 102.12
Less outstanding checks as follows:			
No. 107 ....$		20.00	
No. 115		62.50	82.50
Balance on our books			$19.62

C-III. Analysis of Undivided Balance

Balance Jan. 1, 1921..........................			$ 000.00
Gains on shipments, 1921 ....$		18.71	
Losses on shipments, 1921		11.41	
Excess of gains over losses ....$		7.30	
Transferred to loss and gain............		7.30	
Carried forward			000.00

C-IV. Analysis of Insurance Fund Account

Balance Jan. 1, 1921..........................			$ 000.00
Deducted during 1921:			
Hogs ....$		1,133.89	
Cattle		38.12	
Total deducted ....$		1,172.01	
Add claims collected		1,016.21	
Total credits ....$		2,188.22	
Losses Paid:			
Hogs ....$	1,287.90		
Cattle	000.00		
Total losses paid ....$	1,287.90		
Attorney's fees	203.50		
Total debits		$ 1,491.40	
Credit balance		$ 696.82	
Deduct amount transferred to loss and gain....		196.82	
Net increase carried forward			500.00
Total carried forward			$ 500.00

ANALYZING THE RESULTS OF SHIPPING

If the information contained in the records and reports is to be utilized to the fullest extent in determining business policies, it must be analyzed and reduced to terms which will serve as measures of efficiency. The most successful association is the one which, first, receives the highest price obtainable for each class and grade of livestock, and second, pays the shipper the largest proportion of each dollar of gross sales, considering the services performed.

The analyses presented in the following table are based on the actual results obtained by three associations. It will be noted that even these three associations, selected at random from the same territory, show wide differences in expenses, shrinkage and losses. The extent to which these differences are justified must be determined by the management of each association in the light of its local conditions and other factors. It is not the purpose here to attempt to explain these differences, but rather to emphasize the fact that only by keeping adequate records and analyzing the results will the leaks in the marketing of livestock be revealed and their causes eliminated.

COMPARISON OF RESULTS OBTAINED IN 1921 BY THREE IOWA SHIPPING ASSOCIATIONS IN SHIPPING HOGS

	Assn. A	Assn. B	Assn. C
No. of straight carloads shipped	120	140	144
Markets to which shipped	X	X & Y	X & Z
	Cts. per cwt.*	Cts. per cwt.*	Cts. per cwt.*
Freight, switching, war tax	41.5	34.0	38.5
Feed	4.3	2.6	3.1
Yardage	4.6	2.7	3.8
Selling commission	9.9	7.4	8.8
Insurance, inspection	0.1	0.1	0.1
Total freight and terminal expenses	60.4	46.8	54.3
Manager's commission	9.9	6.8	5.7
Local car expense	2.8	1.9	2.3
Insurance charge	5.0	6.0	5.0
Federation dues	0.3	0.3	0.3
Undivided balance and membership fees	0.1	0.2	0.0
Total home expenses and deductions	18.1	15.2	13.3
Total all expenses and deductions	78.5	62.0	67.6
Less undivided balance, insurance fund balance and membership fees	3.0	2.9	0.3
Net shipping expenses	75.5	59.1	67.3
Shrinkage, lbs. per cwt. (home weight)	0.86	1.26	1.55
Cost of shrinkage, cts. per cwt.†	7.03	9.75	12.25
Total of net expense and cost of shrinkage, cts. per cwt	82.53	68.85	79.55
General expenses, not included in above	0.50	0.70	0.30

*Based on market weight

†Calculated as follows, i. e. for hogs:

Paid shippers for hogs (Statement B-1)	$185,427.98
Add excess of insurance fund charges over losses paid, including net amount of claims collected	658.70
Add undivided balance—gain	6.53
Total	$186,093.21
Deduct proportionate share of general expenses not deducted in determining amount paid shippers above	112.32
Net value of hogs	$185,980.89

$185,980.89÷2,271,439 (mkt. wt.)=8.188c=net value of hogs per lb; 19,512 lbs. of shrinkage @ 8.188c=$1,597.64=total cost of shrinkage; $1,597.64÷2,271,439 (mkt. wt.)=7.034=cost of shrinkage per cwt.

Percent of gross sales value paid shippers	91.8	94.2	93.0
Average price paid shippers per cwt.	$8.16	$8.48	$9.10
	Cts. per cwt.*	Cts. per cwt.*	Cts. per cwt.*
Insurance fund charge	5.0	6.0	5.0
Losses paid	5.7	5.7	2.0
Claims collected, net	3.6	2.1	0.0
Net losses	2.1	3.6	2.0

WHO SHOULD KEEP THE BOOKS?

The question frequently arises as to whether the manager or one of the officers should keep the records. Altho local conditions will to a considerable extent decide this question in each case, it will ordinarily be found more convenient and satisfactory if the books are kept at the place of business or some other place where they would be conveniently accessible to the members and the management. Inasmuch as practically all the business contacts with members and others are made by the manager, it is he who is most frequently called upon to answer questions regarding the business and who will, therefore, have occasion most frequently to refer to the books. Furthermore, the manager of the association is in a position of leadership, and the directors and members look to him to take the initiative in determining the business policies. Unless he has the figures regarding the business conveniently available for constant reference and analysis, he is in very much the same position as a pilot without a compass.

It is not, of course, always possible in practice to make ideal arrangements regarding the clerical work. In fact, the manager who understands the handling and marketing of livestock and who is also qualified or adapted to do clerical work is the exception rather than the rule. The disbursement of the funds and the bookkeeping is, therefore, frequently done by some other officer of the association, usually the secretary, or the local bank. In some cases, the manager attends to the prorating and issues the livestock checks and the secretary-treasurer issues the checks for the home expenses. The chief disadvantage of the latter plan is that all of the records are seldom, if ever, available at one place or at one time.

The prime considerations to be kept in mind are:

1. Safeguarding the funds. This can be accomplished by bonding those responsible for the funds and by monthly audits by an auditing committee and annual audits by a qualified, disinterested accountant.

2. Having all of the records accessible at one place, preferably at the place of business, or at the bank.

3. Having the records kept up to date and according to approved methods. If neither the manager nor the secretary is qualified to do the clerical work, some one who is qualified can usually be induced to assume this responsibility. Economy in the matter of keeping the records is usually dearly bought.

Whether the manager or the secretary keeps the books, or whether the work is delegated to hired help, it is highly desirable that both the manager and one or more members of the board of directors possess a sufficient knowledge of accounting so that they might intelligently judge the results obtained and the method of obtaining them, or to supervise the work when delegated to hired help.

The ability to operate the system of records recommended in this bulletin can readily be acquired by a reasonable amount of conscientious application. This has been amply demonstrated at the short courses held during the winter of 1921-22 by the Extension Service of the Iowa State College* and by the managers and officers who have adopted the system. That the officers and managers of shipping associations in Iowa appreciate the need of qualifying for the technical work involved in administering their business is evidenced by the figure on the inside cover page, which shows the attendance at these short courses.

BETTER MARKETING METHODS

The foregoing discussion of the forms, accounts and procedure is based on certain conclusions as to the methods of conducting the business, reached after an extensive study of cooperative livestock marketing methods. In view of the many different methods used in handling the business at home as well as at the markets, this discussion of the records and accounts would be incomplete unless supplemented by an analysis of the business practices. Moreover, only by free and thoro discussions of the different methods used will real progress be made in standardizing the practices and in eliminating those methods which are unsound and uneconomical.

TERMINAL MARKET METHODS

The chief objective of the cooperative livestock shipping movement is to obtain for the shipper the actual market value of his particular kind and quality of livestock, less the actual cost of marketing it. The extent to which this ideal will be realized depends (1) upon the prevailing methods of selling and weigh-

*Seventeen two-day short courses were held at different points in the state. The first day of each course was devoted to practical laboratory instruction in keeping the records and prorating. The second day was spent at the stock yards and packing plants, where available, studying market grades of livestock, market cuts of meats, and market outlets and preferences. The demonstrations at the yards were followed by round-table discussions of shipping association problems.

ing the livestock at the central markets and handling it at home, and (2) upon the methods used in prorating. A clear understanding of the methods of handling the livestock at the terminal markets is necessary if real progress is to be made in realizing this ideal.

The prevailing method of handling hogs seems to be to sell and weigh by grades and to prorate the shrinkage either on the entire load or separately on the bulk of the load and on the throwouts and packers. On some markets a considerable number of hogs are sold as straight car loads, the salesman pricing the animals in each individual lot on their merits and prorating the shrinkage on the entire load or separately on the bulk of the load and on the throwouts. Less frequently are loads sold according to marks, unless it happens that given lots fall into specific grades which are sold to different buyers. In such cases the shrinkage is ascertainable separately for each lot and may be charged to the individual owners as it actually occurs.

Much the same methods prevail in handling calves and sheep, except that selling and weighing by grades prevails to a greater extent than in the case of hogs. The grading frequently consists merely of culling out the off grades and selling the bulk of the load as a separate lot.

Cattle are quite generally sold and weighed by ownership, each owner being charged with the actual shrinkage on his animals. However, when the cattle in a load run fairly uniform as to grade and quality, they may be sold as one lot. Even in such cases individual weights are usually obtained.

The same methods do not predominate to the same degree on all the markets. The practice of selling and weighing by grades prevails to a greater extent on some markets than on others, depending partly on custom, the adequacy of the handling facilities, the practices of packer, order and other buyers, upon the volume of cooperative shipments, and partly upon the custom and attitude of the salesmen of commission firms. Whether or not a market is receiving shipments from territory in which cooperative shipping is of recent origin also has its influence. It may be said, however, that on all markets the commission firms which solicit cooperative shipments (and most of them now do so) attempt in so far as it is possible, to carry out the instructions of the managers with respect to selling, weighing and prorating.

RELATIVE MERITS OF DIFFERENT METHODS

Naturally, the manager of a shipping association is vitally concerned in having the livestock handled in such a way as to net the shipper the largest possible return. In order that the manager might attain this end, what shall be his instructions to the commission firm regarding methods of weighing and selling? The following discussion of the relative merits of the different methods should aid him in deciding this question in the light of the conditions under which he is operating.

The question seems to resolve itself into three main problems: 1st, selling the livestock so as to obtain the *largest gross amount* possible; 2d, weighing so as to *reduce the shrinkage* to the minimum; 3d, selling and weighing in such a way as to make possible a fair *division of the total returns and the shrinkage among the different shippers.*

Selling Methods: Selling each owner's livestock separately is usually impracticable, except in the case of cattle. More time and labor are required to handle a load under this method and it is more difficult to find buyers who are willing to take the time and go to the trouble of making their purchases piecemeal. More sorting is required, resulting in more shrinkage, and the number of drafts on the scales is increased. The net return is more likely than not to be disappointing.

The main disadvantages of selling by ownership might be avoided by selling the carload as a unit for a flat sum. Some salesmen claim that more can usually be obtained for a straight carload than if the livestock were split up into several lots according to ownership. It is reasonable that buyers should prefer to buy in larger units than the individual lots of livestock in a typical cooperative shipment. It is even claimed that it is often possible to "work off" inferior animals to better advantage by this method than by grading the load, in other words, to "make the good hogs sell the poor ones." The extent to which careful buyers can be imposed upon to this extent is a question.

The chief advantage claimed for this method is that it materially reduces the shrinkage. The chief objection is that where the animals are not of uniform grade and quality, the pricing of the load according to grades is based on the salesman's opinion rather than on actual sales, which, unless done conscientiously, may result in an unfair distribution of the returns among the shippers. This objection can, however, be overcome to a considerable extent if not entirely by home grading by a competent manager.

Selling according to quality or grade predominates on many of the important markets and is without doubt the most desirable method, especially where the animals in the load represent a considerable range in quality and where the spread in the market price for the different grades is wide. Each shipper's animals then actually sell on their merits, as nearly as this ideal can practicably be approached, excessive shrinkage is avoided, and buyers, not being compelled to take undesirable animals in order to get the desirable ones, are inclined to bid more nearly what each grade is actually worth. More than this no manager can hope to obtain for his shippers. Where a shipping association has a sufficient volume of business, this sorting can be done at the shipping point and only animals of one grade loaded in a car.

Weighing: The methods used in weighing the animals are of at least as much concern to the manager of a shipping association as the methods of selling. He is concerned not only in keeping the shrinkage down to the minimum but also in dividing the total shrinkage on a fair basis among the different shippers. As each sale at a given price must be weighed separately, it follows that the method of sale determines to a large extent the method of weighing. The weighing problem resolves itself into the question of the merits of dividing shrinkage according to ownership as against prorating it uniformly on some fair basis.

Weighing by Marks: The advantage claimed for this method of weighing is that the actual shrinkage incurred on each lot can be definitely ascertained and charged to the individual shipper. This is always desirable in the case of cattle, as the shrinkage differs widely, due to the wide differences in the quality and condition of the animals and due to different methods of feeding and handling the cattle. These differences are of less significance in the case of calves. Wide differences often occur in the shrinkage of different lots of hogs and sheep. Hogs and sheep coming from green pastures will shrink more than those coming from the feedlot. Animals driven or hauled different distances to the shipping point often show considerable differences in shrinkage. One of the problems of the manager is to single out the shipper who feeds heavily before delivering his livestock. Weighing by ownership is the most effective method of doing this. Managers frequently request separate weights only on lots which they suspect have been filled before delivery.

The chief disadvantage of weighing by marks, and therefore the chief advantage of weighing by grades, is that excessive shrinkage usually results. Extra shrinkage resulting from weighing according to marks has been reported as high as several hundred pounds in some cases. Naturally this difference will vary with the number of lots in the load. This difference in shrinkage is due to loss of fill, respiration and to the fact that yard scales usually register weights in ten-pound intervals. Another objection which is made to this method of weighing is that more facilities and labor are required at the yards, which eventually must be reflected in higher yardage and commission rates. The premium often paid by order buyers, who are usually anxious to get their cars loaded promptly for shipment east, is sometimes lost to cooperative shippers due to the delay occasioned by weighing by marks. Altogether, this method of weighing does not make for economy in livestock marketing.

Weighing by Grades: The disadvantages of weighing by marks may be avoided by weighing by grades. When separate weights are requested on lots which the manager suspects have been filled, and when shippers have learned how to handle livestock properly before delivering it at the shipping point, weighing by grades will make possible as nearly correct a distribution of shrinkage as it seems practicable to make.

GRADING AND PRORATING AT HOME

On most markets, an extra charge of from $2.00 to $6.00 per carload is made when extra work on account of individual ownership is required. Some of the local packing plants and reload stations, particularly in the middle west, refuse to handle shipments when such extra work is involved, thus practically closing such markets to cooperative associations. This raises the question of the practicability of grading and prorating at home. There is a marked tendency among the older associations to perform this service at home. In some cases, where a local market is the only advantageous outlet for a shipping association, this work has been done by the manager from the beginning.

Successful grading at the shipping point requires that the manager be familiar with market grades and keep closely in touch with market conditions. It also requires that there be a fair volume of business. The manager could, of course, remove the basis for the extra charge and such objections as might be made to handling cooperative shipments because of the extra service required, by crediting each shipper with the weight of each grade of livestock delivered and distributing the returns on the basis of his grading. This he could do whether the shipment consisted of one car or several. However, a further advantage, and perhaps a more important one, is to be gained when the volume of business is such that the livestock may be sorted and shipped to market as straight carloads of uniform grades. Not only is the work involved in handling them reduced to the minimum, but the stock is placed before the buyers to the best advantage.

"In practice, only two things are necessary for the successful working of such a system, viz., a capable and impartial manager, and members who are true cooperators. This last requirement, means, 1st, that the shippers shall ship regularly thru the association, so that any slight error in sorting would average out over a series of shipments; 2d, that they shall have the cooperative point of view, so that they will be ready to accept that method of doing business which results in greatest economy and best results for all, and 3d, that all shippers must be so loyal to the organization and their fellow members that they will give their stock proper treatment, prior to shipment, rather than stuffing, salting, or using other devices for securing a fraudulent home weight or an excessive fill at the market."*

The question of prorating at home presents somewhat the same problems as grading. No reflection on the service rendered by commission men in performing this function is intended when it is asked, "Can this service be performed more satisfactorily or at less cost at home?" No doubt commission firms in most cases are better equipped than the shipping associations to do this work. On the other hand, inasmuch as the alert manager insists on checking the work anyway, he can with but little extra effort make the original calculations. Too frequently, because of the dependence upon the commission firm to do this work, the local management is unaware of the methods used or the problems involved, a critical knowledge of which is essential to progress in realizing the ideal of the shipping association, namely: to obtain for each shipper what his livestock is actually worth less the cost of marketing it.

Conditions are gradually becoming more favorable for grading and prorating at home. Managers and officers are acquiring experience, and the development of the local association in many states seems to be in the direction of consolidating the business under fewer and better qualified managers. The work of prorating would be greatly facilitated by the adoption of a uniform system of records and the use of labor saving devices such as calculating machines, computation tables and suitable printed working forms and permanent records.

PROBLEMS INVOLVED IN PRORATING

Much of the success of a shipping association depends upon whether the shrinkage and expenses are charged and the returns distributed fairly among the different shippers. Prorating, or the calculation of the returns due the individual shippers, is therefore one of the most important operations to be performed in the management of a shipping association.

Prorating involves the following problems:

1. Distributing shrinkage.
2. Distributing the gross amount among the different grades of live stock when a carload of mixed grades is sold for a lump sum.
3. Dividing the expense among the different kinds of stock in a mixed car.
4. Prorating when a shipment consists of more than one car.
5. Distributing the total expenses among the individual shippers according to the livestock shipped by each.

*Bulletin 200; Iowa Agr. Exp. Sta., Cooperative Livestock Shipping Associations in Iowa in 1920, by E. G. Nourse and C. W. Hammans.

Distributing Shrinkage: The usual practice is to charge cattle with their individual shrinkage, which, of course, necessitates obtaining individual weights at home as well as at the market. In the case of hogs, calves, and sheep, however, the usual practice is to prorate the total shrinkage on some uniform basis, preferably so much per hundredweight.

Shrinkage is sometimes prorated on the head basis, which method is equitable only when the animals included are of approximately uniform size and weight. When the shrinkage differs for different grades of animals, as for instance, good butcher hogs and packers, the rate for each grade showing a marked difference should be calculated separately. As already noted in the foregoing, any lots of animals which may unduly influence the average shrinkage should be weighed separately at the market and the owners charged with the actual shrinkage.

Distributing Flat Sum Among Different Grades in Carload: Where a carload of hogs of mixed grades is sold for a flat sum, the commission firm usually indicates on the account sales the market value of the different animals in the shipment. Where hogs, calves or sheep are graded locally, the proceeds are distributed on the basis of the market quotations prevailing on the day of sale for the different grades.

Dividing Expenses When Mixed Loads are Shipped: The question of mixed loads is of more importance in some localities than in others. However, nearly all associations ship some mixed loads. Much difference of opinion seems to prevail as to the method to be used in dividing the different items of expense between the species. It is urged by some, for instance, that the extra freight should be charged to the hogs and by others, to the cattle, calves or sheep. Still others urge that the total expenses should be divided uniformly among the different kinds of stock on the weight basis.

The problem of dividing the expenses centers mainly about the item of freight. Obviously, it is not fair to members shipping 16,000 pounds of hogs in a load to charge them with the freight burden due to the inclusion of one or two thousand pounds of cattle. It would be still worse to charge the cattle with the extra burden. Even if the freight were divided uniformly on the weight basis, it would pay the hog shippers much better to ship their 16,000 pounds in a carload by themselves. The weight basis of division seems the only practical basis. When distribution on this basis puts an undue burden on either group of shippers, the only solution is not to load in such unfavorable proportions. Tables I and II should assist the manager in attempting to reduce to a minimum the freight burden due to shipping mixed loads. By educational work and progressive leadership on the part of the management, the community may be made to see the penalty paid for insisting on shipping in unfavorable proportions. It should be clear, not only to the management of a shipping association but to the membership as well, that an association shipping under excessive freight burdens due to improper mixing is laboring under a considerable handicap, especially when competing with agencies which may take special pains to avoid such burdens.

The division of the other items of expense involves no special difficulties. The yardage is divided according to the rate per head actually applying on each species. Corn is charged to the hogs and the hay to the cattle. Inspection applies to hogs only, and fire insurance, because of the smallness of the amount, may be arbitrarily charged to the bulk of the load. The selling commission is a per-head charge and should be divided on that basis. For instance, in Shipment No. 112 on p. 192, the rate applying on hogs was assumed to be 30 cents, or $15.60 for the 52 head; and on cattle, 90 cents per head or $4.50 for the five head. The total commission at these rates would be $20.10. The proportion of the $18.00 (assumed to be the maximum charge applying on a single car) chargeable to hogs would be as $15.60 is to $20.10, or slightly over 70 percent, and the proportion chargeable to cattle would be as $4.50 is to $20.10, or slightly less than 30 percent.

The manager's commission and the insurance fund charge would be divided on the same basis as that on which these items were originally made. In the illustration, the following rates and bases were used: Manager's commission, 6c per cwt. for hogs and 4c per cwt. for cattle, and ½ of 1 percent of the gross sales value of each kind of stock for insurance. The local car expenses usually consist chiefly of feed and bedding. Each species should be charged with the feed it receives, and the bedding may be divided on the basis of the space occupid by each species in the car or on the weight basis. Rope and special crates for vicious animals should be charged to the owners of the animals requiring their use.

Prorating When Shipment Consists of More Than One Car: When several cars of the same kind of livestock are shipped the same day, should the returns, shrinkage and the expenses be averaged, or should each car be prorated as a separate unit? If 25 farmers deliver 200 head of hogs for shipment today, the fact that 3 cars may be required to transport the livestock is and should be of no concern to them. Each patron is entitled to the same price for the same grade of livestock and should be assessed at the same rate of expense as every other patron whose stock was included in the shipment.

In actual practice, however, the solution is not always so simple. When only one grade of hogs is loaded into each of several cars included in a shipment to one market, the expenses would be averaged for the entire shipment, the shrinkage in the case of the hogs would be calculated separately for the good butcher hogs and the packers and also for the "throwouts" when their shrink is abnormal. In the case of calves and sheep, the rates of shrinkage should be calculated separately for the bulk of the load and the culls or "throwouts," whenever the rates show a marked difference.

As each car in the above case is assumed to contain but one grade of livestock, each grade would be priced to the shippers in accordance with the actual sales. If two or more cars of the same grade sold for different prices the proceeds should be averaged.

Where the shipment consists of several cars of mixed grades it is clear that all shippers should receive the same price for the same grade of stock, even tho the animals were distributed among the several cars and might actually have sold for different prices.

An entirely different situation is presented when part of the shipment goes to one market and another part to another market. In this case the shrinkage and expenses would need to be calculated separately for the cars going to each market. A question arises, however, as to the distribution of the net proceeds. If the manager misjudged the relative merits of the different markets, he will find himself in an embarrassing position when attempting to explain to a shipper why his stock brought less than that of a neighbor, whose stock happened to be included in a car shipped to another market, which market turned out to be the best one that day. If the stock was graded and each grade was shipped to the most advantageous market, it might still happen that the lower grade might bring the same or a higher price than the higher grader, and the manager would have the same difficulty in attempting to explain the inconsistency.

In spite of these difficulties, the manager is presumed to have used his best judgment and to have patronized the market offering the best average results for each class and grade of livestock. Each shipment to a different market should therefore be treated as a separate unit. If dissatisfaction results frequently, it means that the manager misjudges frequently. A thoro knowledge of the different markets, the relative costs of shipping to them, and other factors concerned, is essential on the part of the management if the greatest possible success is to be achieved. Some managers shift the responsibility for the choice of markets to the shippers themselves, or to the shipper who owns the bulk of the load.

Distributing the Total Expenses Among the Shippers: Little uniformity exists in the methods used in distributing the expenses among the shippers. This is true whether the prorating is done at home or by the sales agency. In the case of some of the older associations, particularly in the Northwest and in some of the cornbelt states, all of the expenses are added together and charged to the shipper at so much per hundredweight. In other cases, the attempt of the cooperator to obtain the actual market value of his stock less the actual expenses of marketing, seems to have been interpreted as meaning that the shipper's statement must show in dollars and cents how much he has contributed toward each of the six to a dozen different items of expense, calculated on two or three different bases. Between these two methods there exists a wide range of variations.

Under the method of prorating illustrated in this bulletin, all expenses are to be added together, irrespective of the basis on which charged against the shipment as a whole, and divided among the shippers uniformly on the weight basis. The advantages of this method are:

1. The work involved in prorating is reduced to the minimum, as only one calculation is necessary in determining the amount of expenses to be charged each shipper, as compared with the large number of calculations involved in the detailed method of prorating. The extra work involved in prorating is reflected in the extra charge of $2.00 to $6.00 per car made by commission firms for handling cooperative shipments.

2. The method results in a distribution of expenses among the shippers which is as fair on the average as is practicably possible. Inasmuch as each hundredweight of livestock in a shipment receives practically the same service, it seems logical to distribute the expenses on the weight basis.* Efficiency in marketing calls for handling the shipment in such a manner as will yield the highest possible net price per hundredweight for the entire shipment, rather than striving for individual accounting of each shipper's stock at any cost.

3. The single rate method of prorating conveys to the shipper in an emphatic manner the factors which determine the financial results of the shipment, i. e., the weight and shrinkage,

*It is sometimes urged that it is only fair that the expenses should be passed on to the shipper on the same basis as they were actually incurred. Carried out to its logical conclusion, this would necessitate the determination of the amount of feed actually consumed by each lot of livestock separately. It would mean weighing by ownership to determine actual shrinkage by lots. It might even mean that shippers should assume the risk of losses individually.

the selling price, and the total expenses in dollars and cents and the rate per hundredweight. It is believed the educational benefits of cooperative shipping can be realized more fully by presenting the detailed information regarding expenses, etc., in the form of comparative monthly summaries than by presenting them on the individual members' statements. Variations in expenses, losses and shrinkage can be explained more satisfactorily when based on more extensive data than a single shipments affords, and the danger of overemphasizing the importance of minor details or drawing conclusions from extreme instances is reduced.

Whether the expenses are reduced to one rate per hundredweight or split up into several rates and applied on different bases, present practice seems to favor having each shipment bear its own expenses. There is some tendency, however, particularly among the older associations, to favor the fixed rate of expense applying over a period of time. The chief argument in favor of this method is that it spreads the risk of variations in expenses over a larger number of cars. The variations in the expenses of different shipments are likely to be greater in the case of small associations than large ones because of the greater difficulty to get enough livestock to make a full load without excessively delaying shipments. Differences as high as 20 cents per hundredweight are not uncommon. Certainly it is no fault of the shipper when his livestock happens to be included in a shipment which, because of short weight or for other reasons, incurred relatively high expenses. It seems entirely logical to spread this risk over a number of cars, just as the risk of loss due to dead or crippled animals is spread.

Another argument in favor of this method is that the shipper knows beforehand just what it will cost to ship. Furthermore, the work involved in prorating is reduced to the minimum.

If the fixed rate is to be applied fairly, however, it must take into consideration differences in the costs of shipping the different species of livestock, both in straight and mixed loads, seasonal differences in costs, and differences in the costs of shipping to the different accessible markets. Many associations are even now applying rates on carlot shipments with single owners which reflect the difference in the amount of service required in handling them.

The actual steps involved in prorating the returns for shipment No. 111, used for illustration purposes in this bulletin, are given in detail in the following discussion. The resulting figures appear on the *prorating sheet* on insert, fig. 3. The procedure involved in prorating a mixed shipment is also illustrated by an example.

FILLING OUT THE PRORATING SHEET

The steps followed in calculating the returns for shipment No. 111, the *prorating sheet* for which appears on insert, (fig. 3) are as follows:

1. Insert shipment number, date, shipping point, car number and railway in the spaces provided therefor.

2. Fill in the blanks under "Expenses." The freight and terminal expenses will be obtained from the account sales received from the commission company.

Assume the home expenses to be as follows:

Manager's commission	
6c per cwt., on market weight of 15,905 pounds	$ 9.54
Insurance Fund:	
½ on one percent of gross market value of $1,556.36	7.78
Local car expense (8 bu. corn @ 50c)	4.00
Dues (state association)	.50
Total	$21.82

3. Calculate the rate of expense per hundredweight by dividing the total expense of $125.45 by the market weight of 15,905 lbs. (market weight includes dockage, if any), which gives a result of 78.87c per cwt.

To avoid the awkward fraction in figuring the expenses, a rate of 79 cents per cwt. is used in calculating each shipper's expenses in this illustration.

4. List each owner's delivery of livestock according to the price ranges on the account sales (or, if graded at home, according to the home grades) and insert the home weights.

5. Calculate the rates of shrinkage as follows:

Kind	Home Wt.	Market Wt.	Shrinkage Lbs.	Shrinkage Rate*	Rates used in Prorating
Butcher Hogs	14,180	14,035	145	1.02%	1.00%
Packers Hogs	1,905	1,870	35	1.84%	2.00%
Total	16,085	15,905	180	1.118	

6. Calculate each shipper's shrinkage by multiplying the home weight by the rate determined above for each kind of livestock, and prove the shrinkage calculations by comparing the total shrinkage deducted plus the market weight with the total home weight. Where the shrinkage rate used in prorating has been rounded up or down, the total pounds of shrinkage and the total market weight as shown on the Prorating Sheet may be a few pounds more or less than the actual shrinkage and market weight.

7. Calculate the gross amount due each shipper, using the prices given on the account sales. In the case of dead or crippled animals, the calculations on the Prorating Sheet are carried thru at the prices such animals would have brought undamaged. Any difference in the prorated market weight and the actual weight due to averaging the shrinkage will also result in a slight discrepancy between the calculated gross sales value and the gross sales value shown on the account sales. The gross sales value obtained on the Prorating Sheet will also be greater than that shown in the account sales when damaged animals are calculated at the price they would have brought undamaged.

*The rates of shrinkage are obtained by dividing the shrinkage in pounds by the home weight.

8. Calculate the amount of expenses to be deducted from each shipper's returns by multiplying the market weight by the rate obtained under 3 on p. 188. Here again the total prorated expenses may differ slightly from the actual expenses due to rounding the expense rate up or down to facilitate calculation.

9. Ascertain the net amount due each shipper and prove the deduction of expenses by comparing the sum of the expenses and net amount with the gross amount.

10. By carrying out the calculations indicated under "Proof of Settlement" in the lower, left-hand corner of the Prorating Sheet, the total difference between the prorated results and the actual results of the shipment will be determined. The gross sales value will be found on the account sales. To this will be added insurance payments, if any, to obtain the total to be prorated. The total deductions will consist of the *total expenses listed on the left-hand margin* of the prorating sheet, plus membership fees, if any. Subtracting the total deductions from the total to be prorated will give the balance for distribution,—that is, the amount which could actually have been distributed had shrinkage been calculated exactly to the pound and expenses to the penny. In the illustration it is found that \$1430.03 was actually distributed, whereas \$1430.91 was available for distribution, hence the undistributed balance-gain of 88 cents.

PRORATING MIXED SHIPMENTS

The prorating of carloads containing more than one kind of livestock is discussed under prorating on pp. 183 to 184. However, in order to more fully illlustrate the procedure involved, an assumed carload containing 13,505 pounds of hogs and 5,400 pounds of cattle is carried thru the records in the following pages. Other complications, such as reimbursement for dead and crippled animals, dockage, and membership deductions, are also introduced into this shipment. (See figs. 12 and 13; insert.)

For the purpose of this illustration, it is assumed that the *scale tickets* show that livestock was delivered as follows:

Axel Johnson:		
3 light butchers	615 lbs.	I Back
7 packers	2,185 lbs.	I "
1 stag	285 lbs.	no mark
4 cows	4,310 lbs.	" "
Nels Peterson:		
20 light butchers	4,100 lbs.	no mark
21 heavy butchers	6,320 lbs.	" "
1 bull	1,090 lbs.	" "

In prorating the returns for this shipment, the shrinkage is first ascertained separately for the butcher and the packer hogs as follows:

Kind	No.	Home Wt.	Market Wt.	Shrinkage Lbs.	Shrinkage Percent
Butchers	44	11,035	10,915	120	1.10[1]
Packers	7	2,185	2,140	45	2.06[1]

[1]The shrinkage in pounds, divided by the home weight gives the rate of shrinkage in pounds per hundredweight or as a percentage of the home weight.

Shipping Assn. Form No. 2

MANIFEST
OF LIVE STOCK SHIPPED BY Brookridge Coop. Assn. Brookridge, Ia.

Consigned to Cooperative Com. Co. Chicago

Mail Account Sales to John Clark, Mgr. Brookridge, Ia.

Send Money to " Same

Handling Instructions Weigh by grades; sell according to best judgment

Shipment No. 112

Date Shipped Nov. 5 1921

Railroad C & NW.

Car Nos. C & NW. 5695

Loaded 8:00 ~~A.M.~~ P.M.

HOME EXPENSES

Manager's Commission $
Insurance Fund . . . . $
Operating Expense . $
$
$
$
Total $

OWNERS	HOGS: Butchers 1	Butchers 2	Packers	Stags	Boars	Pigs	Crips. Busts	Home Weight	MARKS	CATTLE: Steers	Cows	Heifers	Bulls	Calves	Home Weight	SHEEP: Lambs	Ewes	Yrlgs. Wthrs.	Bucks	Home Weight
Axel Johnson	3							615	I Back											
"			7					2185	"											
"				1				285	—											
"									—		4				4310					
Nels Peterson	20							4100	Red											
"		21						6320	"											
"									—				1		1090					
	23	21	7	1				13505			4		1		5400					

Fig. 11. Manifest for shipment No. 112.

190

Shipping Assn. Form No. 3

PRORATING SHEET

FOR Hogs

SHIPMENT No. 112

Date Nov 5 1921

Shipping Point

Car No. 5695 R. R. C&NW

EXPENSES	
Freight	67 42
Yardage	6 24
Feed and Bedding	6 75
Inspection	22
Insurance	
Selling Commission	13 97
Market Expense	94 08
Manager's Com.	8 00
Insurance Fund	6 08
Operating Expense	2 52
Assn Dues	36
Home Expense	16 96
Total Expense	111 04
Exp. ¢ per Cwt.	83 29

PROOF OF SETTLEMENT	
Gross Sales Value	1217 20
Insurance Paid	25 75
Total to be Prorated	1242 95
Total Expense	111 04
Membership	2 00
Total Deductions	113 04
Bal. for Distribution	1129 91
Net Amt. Distributed	1130 16
Undivided Balance (Gain / Loss)	0 25

OWNERS	No.	HOME WEIGHT	Shrink	MARKET WEIGHT	Dockage Sows	Dockage Stags	Dockage Lbs.	PRICE	AMOUNT	TOTAL	EXPENSE 83 ¢ Cwt.	Membership	NET AMOUNT	Ck. No.
Axel Johnson	3	615	7	608				10 —	60 80					
"	7	2185	44	2141	1		40	8 —	168 08					
"	1	285	5	280		1	70	7 —	14 70	243 58	25 14	1 00	217 44	
Nels Peterson	20	4100	45	4055				10 —	405 50					
"	20	6320	70	6250				9 50	593 75	999 25	85 53	1 00	912 72	
	51	13505	171	13334	1	1	110			1242 83	110 67	2 00	1130 16	

Fig. 12. Prorating sheet for hogs, shipment No. 112.

Shipping Assn. Form No. 3

PRORATING SHEET FOR Cattle

SHIPMENT NO. 112

Date Nov. 5 1921

Shipping Point

Car No. 5695 R. R. C. & N.W.

OWNERS	No	HOME WEIGHT	Shrink	MARKET WEIGHT	Dockage: Sows	Dockage: Stags	Dockage: Lbs	PRICE	AMOUNT	TOTAL	EXPENSE 71¢ Cwt.	Membership	NET AMOUNT	Ck. No
Axel Johnson	3	3360	60	3300				6 –	198 00					
"	1	950	20	930				7 –	65 00	263 00	30 03		232 97	
Nels Peterson	1	1090	40	1050				5 –		52 50	7 46		45 04	
	5	5400	120	5280						315 50	37 49		278 01	

EXPENSES	
Freight	26 22
Yardage	1 50
Feed and Bedding	75
Inspection	
Insurance	07
Selling Commission	4 03
Market Expense	32 57
Manager's Com.	2 11
Insurance Fund	1 58
Operating Expense	98
Assn Dues	14
Home Expense	4 81
Total Expense	37 38
Exp. ¢ per Cwt.	70 80

PROOF OF SETTLEMENT	
Gross Sales Value	315 50
Insurance Paid	–
Total to be Prorated	315 50
Total Expense	37 38
Membership	–
	–
Total Deductions	37 38
Bal. for Distribution	278 12
Net Amt. Distributed	278 01
Undivided Balance { Gain / Loss	0 11

Fig. 13. Prorating sheet for cattle, shipment No. 112.

The rate of 1.1 percent was actually used in calculating the shrinkage of the butcher hogs, but in the case of the packers, 2 percent was used instead of 2.06 percent. The stag and the cattle were charged with their actual shrinkage.

It is assumed that the following account sales represents the results of the sale of this shipment.

COOPERATIVE COMMISSION COMPANY
Union Stock Yards, Chicago, Nov. 6, 1921.
Sold for the account of the Brookridge Cooperative Shipping Association, Brookridge, Iowa.

Buyer	No. Head	Kind	Weight	Dockage: Sows	Dockage: Stags	Dockage: Lbs.	Marks	Price	Amount
Swift	22	Hogs	4,465				2-I; 20 No mark	$ 10.00	$ 446.50
Hinkle	1	Dead	200				1 ($10)*	1.00	2.00
Armour	20	Hogs	5,940				No mark	9.50	564.30
Hinkle	1	Crip.	310				($9.50)*	7.00	21.70
Swift	7	Pkrs.	2,140	1		40	I	8.00	168.00
Cudahy	1	Stag	28[illegible]		1	70		7.00	14.70
Brennan	3	Cows	3,300					6.00	198.00
Brennan	1	Cow	930					7.00	65.00
Brennan	1	Bull	1,050					5.00	52.50

C. & N. W. 5694, 22,000 lbs. at 40c	$88.00	Freight	$93.64	
Switching	3.00	Yardage 52 at 12c; 5 at at 30c	7.74	
War Tax	2.64	Insurance	.07	
	$93.64	Hay 100 lbs.	.75	
		Corn 5 bu.	6.25	
		Inspection	.20	
		Commission	18.00	126.65
		Net proceeds		$ 1,406.05

*Undamaged value per cwt.

The expenses are next divided item by item between the hogs and the cattle. The freight and terminal expenses appear on the account sales and the home expenses are assumed to be as follows:

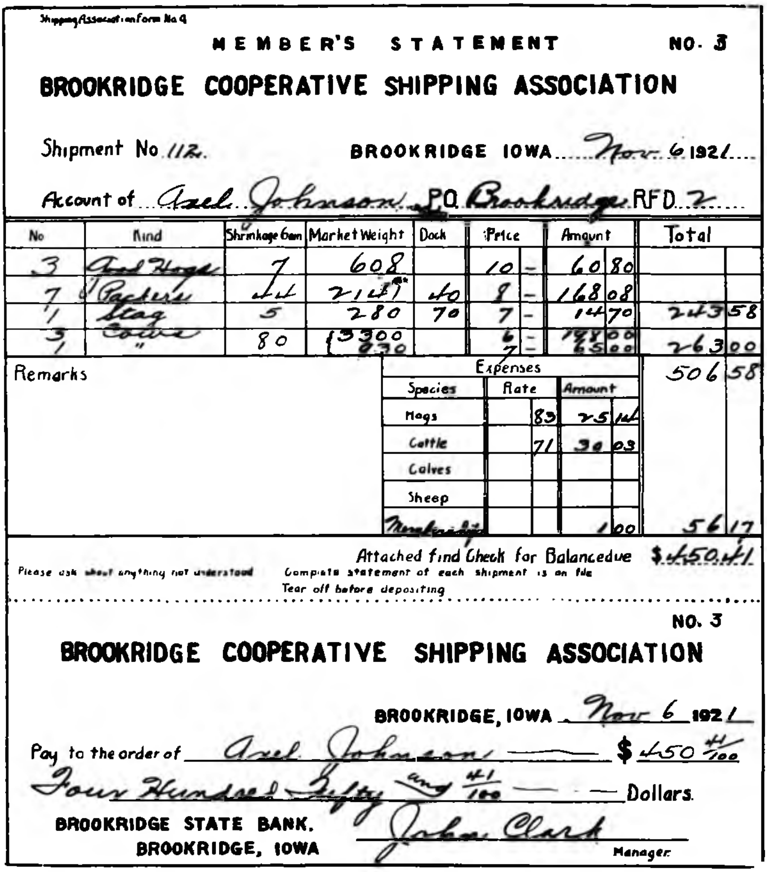
Manager's Commission		
Hogs 13,335 lbs. terminal weight @ 6c cwt.	$8.00	
Cattle 5,280 lbs. @ 4c	2.11	$10.11
Insurance fund ½ of 1% of gross sales value		7.66
Local car expense		3.50
State federation dues		.50
Total		$21.77

The division of the expenses is shown in the following table. The total expenses are shown in the first column, the amount chargeable to hogs in the second column and to cattle in the third column.[2] The total expense for each species is then determined and the rate per hundredweight calculated on the basis of the terminal weights.

[2]See discussion of method on pp. 183 and 184.

Expenses

Expenses	Total	Hogs	Cattle
Freight, switching and war tax....	$93.64	$67.42	$26.22
Yardage	7.74	6.24	1.50
Feed	7.00	6.25	.75
Insurance .20, inspection .07	.27	.20	.07
Selling commission	18.00	13.97	4.03
Total market expense	$126.65	$94.08	$32.57
Manager's commission	10.11	8.00	2.11
Insurance fund	7.66	6.08	1.58
Operating exp. $3.50, dues $.50....	4.00	2.88	1.12
Total home expenses	$21.77	$16.96	$4.81
Total expenses	$148.42	$111.04	$37.38
Rate per Cwt. Cents..............		83.29	70.8



Shipping Association Form No. 4

MEMBER'S STATEMENT NO. 3

BROOKRIDGE COOPERATIVE SHIPPING ASSOCIATION

Shipment No 112. BROOKRIDGE IOWA Nov 6 1921

Account of Axel Johnson P.O. Brookridge RFD 2

No	Kind	Shrinkage Gain	Market Weight	Dock	Price		Amount		Total	
3	Good Hogs	7	608		10	–	60	80		
7	Packers	44	2147	40	8	–	168	08		
1	Stag	5	280	70	7	–	14	70	243	58
3	Cows	80	3300		6	–	198	00		
1	"		930		7	–	65	00	263	00

Remarks

Expenses				
Species	Rate		Amount	
Hogs		83	75	14
Cattle		71	30	03
Calves				
Sheep				
Membership			1	00

Total: 506 58; expenses 56 17

Attached find Check for Balance due $450.41

Please ask about anything not understood. Complete statement of each shipment is on file. Tear off before depositing

NO. 3

BROOKRIDGE COOPERATIVE SHIPPING ASSOCIATION

BROOKRIDGE, IOWA Nov 6 1921

Pay to the order of Axel Johnson $450 41/100

Four Hundred Fifty and 41/100 Dollars

BROOKRIDGE STATE BANK.
BROOKRIDGE, IOWA

John Clark
Manager

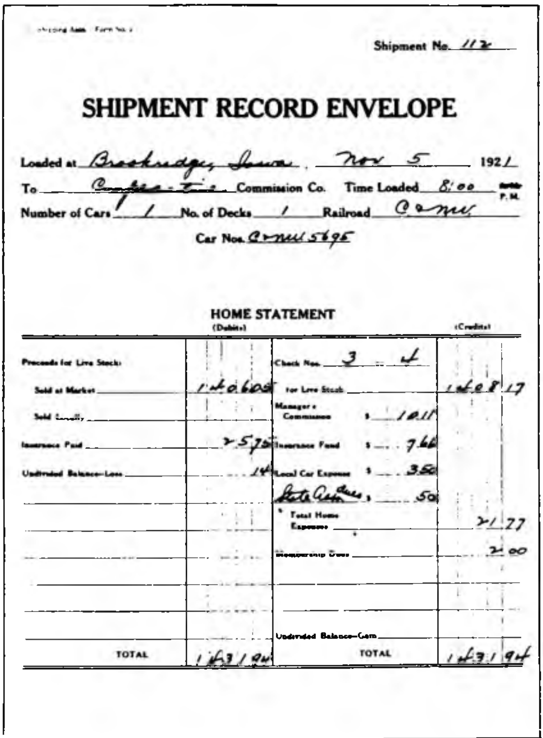
Fig. 14. Member's statement showing results of sale of stock included by Axel Johnson in shipment No. 112.

To facilitate the calculation of the expenses to be charged each shipper, the rate for hogs was rounded down to 83 cents and for cattle up to 71 cents.

All data needed in prorating are now before us. A separate *prorating sheet* is used for each kind of livestock and after the expenses have been transferred to the *prorating sheets* the calculations are carried out as in prorating shipment No. 111.

Referring to the accompanying *prorating sheets* for shipment No. 112 (figs. 12 and 13, insert), it should be noted that in calculating the returns for the hogs, nothing appears on the *prorating sheet* to indicate that one hog was dead and another crippled. As these hogs were received in good condition, they are to be paid for at the price they would have brought undamaged and the difference is to be charged to the *insurance fund* account. These animals are therefore included with the undamaged animals in carrying out the calculations. The amount of $25.75 appearing opposite *insurance paid* under *proof of settlement* is made up of the difference of $18.00 between the $2.00 which the dead hog actually brought and the $20.00 it would have brought undamaged at $10.00 per cwt., according to notations made on the account sales by the commission firm, and the loss of $7.75 figured in a similar way on the crippled hog.

A *member's statement* showing the results of the sale of the livestock delivered to Axel Johnson in shipment No. 112 is shown in fig. 14.



Shipment No. 112

SHIPMENT RECORD ENVELOPE

Loaded at Brookridge, Iowa, Nov 5 1921

To [illegible] Commission Co. Time Loaded 8:00 P.M.

Number of Cars 1 No. of Decks 1 Railroad C & NW

Car Nos. C & NW 5695

HOME STATEMENT

(Debits)		(Credits)		
Proceeds for Live Stock:		Check Nos. 3 - 4		
Sold at Market	1406.05	for Live Stock		1408.17
Sold Locally		Manager's Commission	$ 10.11	
Insurance Paid	25.75	Insurance Fund	$ 7.66	
Undivided Balance—Loss	.14	Local Car Expense	$ 3.50	
		State Assn. dues	$ .50	
		Total Home Expenses		21.77
		Membership Dues		2.00
		Undivided Balance—Gain		
TOTAL	1431.94	TOTAL		1431.94

Fig. 15. Shipment record envelope for shipment No. 112.

The data to appear on the *shipment record envelope* for shipment No. 112 are filled in on the accompanying form, fig. 15.

It will be noted that when the undivided balances on both prorating sheets are combined for this shipment, there was a net over-payment of fourteen cents, which is obtained by subtracting the under-payment of eleven cents on the cattle sheet from the over-payment of twenty-five cents on the hog sheet.

By referring to the illustrative entries in the *shipment summary record* for Shipment No. 112 (fig. 6, insert) it will be noted that the hogs and cattle included in this shipment are summarized on separate sheets indexed according to species. Reference is made to transaction No. 14, on p. 198, for the *cash journal* entry to be made for the settlement for this shipment.

THE MIXED CARLOAD

Tables I and II (insert) are presented to illustrate the effect on the freight cost of shipping carloads of livestock containing hogs and cattle in varying proportions. They are calculated on the basis of the new ruling of the Interstate Commerce Commission relative to the method of charging freight on mixed loads of livestock. (See footnote for ruling and illustrations.) The figures apply to a standard 36 foot, single deck car and the rates used were 36 cents per cwt. for hogs and 34 cents for cattle. Similar tables may be readily constructed for other kinds of livestock, for cars of different capacity, for different minimum weights, and based on different rates.

The alternative of shipping a short-weight, partly filled carload of hogs, cattle, or sheep is, of course, to ship a mixed load. When the manager has a choice, his problem is to decide which is the more economical alternative. Many communities, how-

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*Tables prepared by C. W. Crickman, assistant in agricultural economics, Iowa State College.

†"When cattle, calves, hogs, sheep, lambs, goats, kids, horses and (or) mules are shipped in mixed carloads, charges shall be based on the rate and minimum for that kind of stock which, on a straight carload basis, produces the highest charge, except that in no case shall the charges per car be less than on a straight carload of the highest rated kind at actual weight of the mixed shipment."

Previous to August 19, 1922, the date on which the new ruling of the I. C. C. was to have gone into effect, the freight on a mixed load of livestock was calculated at the highest rate based on the highest minimum represented by the livestock in the car. Under the new ruling it is impossible to charge both the highest rate and the highest minimum. For instance, assuming freight rates of 34 cents for cattle and 36 cents for hogs, the freight on a 20,000-pound load of hogs and cattle would be $74.80; that is, 34 cents on 22,000, the cattle rate and minimum, since this rate and minimum produces a higher charge than the hog rate and minimum. If the load weighed as much as 21,000 pounds, the freight charge would be $75.60 (the hog rate of 36 cents applied on the *actual* weight), since, according to the rule, the charge per car shall not "be less than on a straight carload of the highest rated kind *at actual weight of the mixed shipment.*"

ever, produce livestock in such quantities and in such proportions that the mixed carload is the rule rather than the exception. In this case the manager's problem is to select such proportions of two or more different kinds of livestock as will reduce the freight burden to the minimum. A study of table I will show what proportions of hogs and cattle must be loaded in order to obtain the most favorable average rate on the entire load.

The figures in table I represent the average freight rate on the entire contents of the carload. The figures for full loads of a single kind of livestock are also presented in this table to facilitate comparison. The cattle weights are given at the top of the table and the hog weights on the left-hand margin. The average freight rate applying on a carload containing hogs and cattle in any given proportion is found at the intersection of the columns in which the given weights appear. For instance, assume that 19,000 pounds of cattle are available for shipment, and that this quantity leaves some space in the car. In the first space beneath 19,000 in table I, we find $.39 the rate per cwt. for the given weight of cattle shipped alone. Below this figure are given the rates which would apply if the weights of hogs appearing on the left-hand margin were included with the cattle. The inclusion of 1,000 pounds of hogs would result in an average rate of 37 cents per cwt. on the entire load. Were it possible to include 2,000 pounds or more of hogs, the average rate would be 36 cents. Similarly, the rate for any of the combinations of hogs and cattle within the scope of the table can be determined.

It will be noted that on the basis of the rates used, when a short load of cattle is finished with hogs, the average rate is always lower than it would be were the cattle shipped alone. This is due to the fact that the hogs occupy space which must be paid for whether used or not. However, in the case of a carload of hogs which is two or three thousand pounds short of the minimum weight, at least 4.000 pounds of cattle would have to be included in order to obtain a lower rate than would apply if the hogs were shipped alone.

The mixed load, the bulk of which consists of hogs, and in which a few cattle are included to finish the load, is a burden

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Note: Since this manuscript went to the printer, the date the ruling of the I. C. C. referred to above should have gone into effect has been postponed and the case has been reopened for the second time. Should the action of the I. C. C. be rescinded, the burdens in table II would be increased by $4.40 for each combination of weights totaling less than 20,000 lbs., $3.60 on a total weight of 21,000 lbs., and no additional burden when 22,000 lbs. is loaded. The effect on table I would be to add from 2 cents to 3 cents to the rates per cwt. when the weight is from 15,000 lbs. to 21,000 lbs., inclusive, there being no difference when 22,000 lbs. is loaded. On loads weighing less than 15,000 lbs. from 4 cents to 22 cents would be added to the rates.

not only to the shipping association but to the community, as it is seldom, if ever, possible to crowd enough livestock into such a load to even approximate the higher minimum weight.

The total burden to the community due to the necessity of shipping mixed loads of hogs and cattle in various proportions rather than shipping each kind in straight, full loads, is presented in table II. The figures in the table represent the burden, due either to the failure to load at least to the minimum weight, or to the application of the higher hog rate to the cattle included in the mixed load. For instance, it will be noted that in the case of a mixed load containing 16,000 pounds of cattle and 2,000 pounds of hogs, the burden amounts to $13.20. This amount is obtained as follows: The freight on 16,000 pounds of cattle at the cattle rate of 34 cents per cwt. would be $54.40, and on the 2,000 pounds of hogs at 36 cents, $7.20, or a total of $61.60. The total freight, however, on the mixed load at 34 cents on the minimum weight of 22,000 pounds would be $74.80, a difference of $13.20. In other words this burden consists of $13.60, freight on the 4,000 pounds which the load is short of the minimum weight, less 40 cents gained due to the fact that the rate of 34 cents instead of 36 cents applied on the 2,000 pounds of hogs included in this load.

In the case of a mixed load containing as much as 21,000 pounds, consisting of 19,000 pounds of cattle and 2,000 pounds of hogs, the burden would be $3.80 and would be due entirely to the application of the hog rate of 36 cents, instead of the cattle rate of 34 cents, on the 19,000 pounds of cattle included in the shipment. Previous to the ruling of the I. C. C. relative to this matter, the freight on mixed shipments was calculated at the highest rate based on the highest minimum weight represented by the livestock in the shipment; hence in many cases the burden was due not only to the failure to load the car to the highest minimum weight, but also to the application of a higher rate to stock which on a straight car basis would take a lower rate.

In all of the foregoing discussion and in the tables, a difference of 2 cents per cwt. between the hog and the cattle rates was assumed. Where the difference in the rates is more or less than this amount the burden will vary accordingly, and where the rates are the same, no burden will, of course, result from the application of the hog rate on the cattle in a mixed load. In such cases the burden would be due entirely to the failure to load to the minimum weight.

TABLE I. AVERAGE FREIGHT RATES PER HUNDREDWEIGHT OF ACTUAL WEIGHT OF HOGS AND CATTLE LOADED IN VARIOUS PROPORTIONS IN MIXED LOADS*

CATTLE (columns) / HOGS (rows)

Pounds	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17000	18000	19000	20000	21000	22000
0	....	7.48	3.74	2.49	1.87	1.50	1.25	1.07	.94	.83	.75	.68	.62	.58	.53	.50	.47	.44	.42	.39	.37	.36	.34
1000	6.12	3.74	2.49	1.87	1.50	1.25	1.07	.94	.83	.75	.68	.62	.58	.53	.50	.47	.44	.42	.39	.37	.36	.36	.36
2000	3.06	2.49	1.87	1.50	1.25	1.07	.94	.83	.75	.68	.62	.58	.53	.50	.47	.44	.42	.39	.37	.36			
3000	2.04	1.87	1.50	1.25	1.07	.94	.83	.75	.68	.62	.58	.53	.50	.47	.44	.42	.39	.37	.36				
4000	1.53	1.50	1.25	1.07	.94	.83	.75	.68	.62	.58	.53	.50	.47	.44	.42	.39	.37	.36					
5000	1.22	1.25	1.07	.94	.83	.75	.68	.62	.58	.53	.50	.47	.44	.42	.39	.37	.36						
6000	1.02	1.07	.94	.83	.75	.68	.62	.58	.53	.50	.47	.44	.42	.39	.37	.36							
7000	.87	.94	.83	.75	.68	.62	.58	.53	.50	.47	.44	.42	.39	.37	.36								
8000	.77	.83	.75	.68	.62	.58	.53	.50	.47	.44	.42	.39	.37	.36									
9000	.68	.75	.68	.62	.58	.53	.50	.47	.44	.42	.39	.37	.36										
10000	.61	.68	.62	.58	.53	.50	.47	.44	.42	.39	.37	.36											
11000	.56	.62	.58	.53	.50	.47	.44	.42	.39	.37	.36												
12000	.51	.58	.53	.50	.47	.44	.42	.39	.37	.36													
13000	.47	.53	.50	.47	.44	.42	.39	.37	.36														
14000	.44	.50	.47	.44	.42	.39	.37	.36															
15000	.41	.47	.44	.42	.39	.37	.36																
16000	.38	.44	.42	.39	.37	.36																	
17000	.36	.42	.39	.37	.36																		
18000	.36	.39	.37	.36																			
19000	.36	.37	.36																				
20000	.36	.36																					
21000	.36	.36																					
22000	.36	.36	.36	.36	.36	.36	.36	.36	.36	.36	.36	.36	.36	.36	.36	.36	.36	.36	.36	.36	.36	.36	.36

(Figures are omitted when constant rate of 36 cents is reached.)

TABLE II. EXTRA FREIGHT PER CAR DUE TO MIXING HOGS AND CATTLE IN VARIOUS PROPORTIONS AS COMPARED WITH SHIPPING EACH KIND OF LIVESTOCK IN STRAIGHT CARLOADS LOADED TO THE MINIMUM WEIGHT*

CATTLE (columns) / HOGS (rows)

Pounds	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17000	18000	19000	20000	21000	22000
1000	$67.80	$64.40	$61.00	$57.60	$54.20	$50.80	$47.40	$44.00	$40.60	$37.20	$33.80	$30.40	$27.00	$23.60	$20.20	$16.80	$13.40	$10.00	$6.60	$4.00	$4.20	$4.40
2000	64.20	60.80	57.40	54.00	50.60	47.20	43.80	40.40	37.00	33.60	30.20	26.80	23.40	20.00	16.60	13.20	9.80	6.40	3.80	4.00	4.20	
3000	60.60	57.20	53.80	50.40	47.00	43.60	40.20	36.80	33.40	30.00	26.60	23.20	19.80	16.40	13.00	9.60	6.20	3.60	3.80			
4000	57.00	53.60	50.20	46.80	43.40	40.00	36.60	33.20	29.80	26.40	23.00	19.60	16.20	12.80	9.40	6.00	3.40	3.60				
5000	53.40	50.00	46.60	43.20	39.80	36.40	33.00	29.60	26.20	22.80	19.40	16.00	12.60	9.20	5.80	3.20	3.40					
6000	49.80	46.40	43.00	39.60	36.20	32.80	29.40	26.00	22.60	19.20	15.80	12.40	9.00	5.60	3.00	3.20						
7000	46.20	42.80	39.40	36.00	32.60	29.20	25.80	22.40	19.00	15.60	12.20	8.80	5.40	2.80	3.00							
8000	42.60	39.20	35.80	32.40	29.00	25.60	22.20	18.80	15.40	12.00	8.60	5.20	2.60	2.80								
9000	39.00	35.60	32.20	28.80	25.40	22.00	18.60	15.20	11.80	8.40	5.00	2.40	2.60									
10000	35.40	32.00	28.60	25.20	21.80	18.40	15.00	11.60	8.20	4.80	2.20	2.40										
11000	31.80	28.40	25.00	21.60	18.20	14.80	11.40	8.00	4.60	2.00	2.20											
12000	28.20	24.80	21.40	18.00	14.60	11.20	7.80	4.40	1.80	2.00												
13000	24.60	21.20	17.80	14.40	11.00	7.60	4.20	1.60	1.80													
14000	21.00	17.60	14.20	10.80	7.40	4.00	1.40	1.60														
15000	17.40	14.00	10.60	7.20	3.80	1.20	1.40															
16000	13.80	10.40	7.00	3.60	1.00	1.20																
17000	10.20	6.80	3.40	.80	1.00																	
18000	6.60	3.20	.60	.80																		
19000	3.00	.40	.60																			
20000	.20	.40																				
21000	.20																					
22000	.20	.40	.60	.80	1.00	1.20	1.40	1.60	1.80	2.00	2.20	2.40	2.60	2.80	3.00	3.20	3.40	3.60	3.80	4.00	4.20	4.40

(Where figures are not given, the last figure given in each column applies to all below.)

*See footnote on page 194.

ILLUSTRATIVE TRANSACTIONS

Note: See fig. 10 (insert) for *cash journal* entries for the following transactions.

For the purpose of this illustration, it is assumed that totals have accumulated in the different accounts as indicated below, as a result of the business transacted up to November 1, 1921. This business is assumed to consist of livestock handled as summarized on the first line in the *shipment summary record* (see fig. 6, insert). Eighty shares of capital stock at $5.00 per share had been sold; $300 had been borrowed at the bank, and $1,000 had been invested in scales and other equipment. The manager had been paid in full and the deductions for local car expenses just equal the amount which had been disbursed for this purpose. The totals which had accumulated are shown in the following trial balance.

Trial Balance

November 1, 1921

	Debits	Credits
Bank	$172,655.49	$172,079.47
Livestock	170,965.03	170,965.03
Manager's commission	2,070.09	2,070.09
Insurance fund (including Ry. Claims)	1,226.00	2,025.51
Local car expense	578.60	578.60
Federation dues		55.00
Undivided balance	8.96	12.47
Equipment	1,000.00	
Indebtedness		300.00
Loss and gain		18.00
Net worth		400.00
Totals	$348,504.17	$348,504.17

The condition of the business affairs is revealed by the following statement of resources and liabilities constructed from the balances in each of the foregoing accounts:

Statement of Resources and Liabilities
of the
Brookridge Cooperative Shipping Association

Nov. 1, 1921

Resources		**Liabilities**	
Cash	$ 576.02	Notes payable	$ 300.00
Equipment	1,000.00	Insurance Fund	799.51
		Federation Dues	55.00
		Undivided Balance	3.51
		Net Worth	
		Capital stock paid in	400.00
		Loss and gain	18.00
	$1,576.02		$1,576.02

November 1

(1) The board of directors have approved both the *trial balance* and the *statement of resources and liabilities* constructed from it. The cash journal will, therefore, be opened by entering in each account therein the accumulated debits and credits given in the foregoing trial balance.

(2) Paid Jones Feed Store for feed for Shipment No. 111, check No. 101, for $4.00.

November 2

(3) Received from Cooperative Commission Co., proceeds of Shipment No. 111, $1,452.73.

(4) Paid Bell Telephone Co., November telephone bill, check No. 102, $2.50.

(5) Paid Eureka Printing Co., for cash journal binder $5.00, and stationery $5.00, check No. 103, $10.00. (The permanent binder should be debited to the yard and office equipment account and the stationery to general expense.)

November 3

(6) Settlement for shipment No. 111 as per home statement on the shipment record envelope for this shipment.

Accounts Debited		Accounts Credited	
Livestock	$1,452.73	Bank (Checks 1-2)	$1,430.00
		Manager's Commission	9.54
		Insurance Fund	7.78
		Local Car Expense	4.00
		Federation Dues	.50
		Individual Balance-gain	.88
	$1,452.73		$1,452.73

(7) Paid Jno. Clark, manager, commission for shipment No. 111, check No. 104, $9.54.

November 4

(8) Paid Blank State Bank $200 note with interest, $16.00, check No. 105, $216.00.

November 5

(9) Paid Smith Hardware Store for rope for shipment No. 112, check No. 106, $1.00.

(10) Paid Farmer's Elevator Co., 40 bu. of corn, check No. 107, $20.00.

November 6

(11) Received from Cooperative Commission Co., proceeds from shipment No. 112, $1,406.05.

November 7

(12) Paid Tribune Printing Co., for advertising circulars, check No. 108, $4.00.

(13) Paid National Surety Co., for premium on manager's bond, check No. 109, $37.50.

(14) Settlement for shipment No. 112. (See shipment record envelope, fig. 15, for this shipment.)

Accounts Debited		Accounts Credited	
Livestock	$1,406.05	Bank (Chks. 3-4)	$1,408.17
Insurance fund (losses paid)	25.75	Manager's commission	10.11
Undivided balance loss	.14	Insurance fund	7.66
		Local car expense	3.50
		Federation dues	.50
		Loss and gain (membership fees)	2.00
	$1,431.94		$1,431.94

November 25

(15) Paid U. S. Office Equipment Co., for Burroughs adding machine No. 36980, check No. 110, $250.00.

(16) In order that the cash journal might show the results of all shipments made during November, as recorded in the shipment summary record, shipments No. 113 to No. 122 will, for the purpose of this exercise, be entered in summary form. It will be assumed that the manager's commission and the local car expenses have been paid in full for these shipments. The debits and credits arising from these transactions are as follows:

	Debits	Credits
Bank	$18,654.75	$18,760.33
Livestock	18,654.75	18,654.75
Manager's commission	249.66	249.66
Insurance fund	236.65	121.52
Local car expense	60.79	60.79
Federation dues		6.50
Undivided balance	2.31	5.36
	$37,858.91	$37,858.91

Total all columns at the end of the month, entering all of the amounts on the same line. See fig. 10 (insert). If the debits and credits arising from each transaction have been correctly entered, the sum of the debit totals at the end of the month should equal the sum of the credit totals.

A statement of resources and liabilities based on the balances in the different accounts at the end of November appears as follows:

Statement of Resources and Liabilities
November 30, 1921

Resources		Liabilities		
Yard and office equipment	$1,255.00	Bank overdraft		$ 63.52
Prepaid expense (feed)	17.50	Notes payable		100.00
		Due Jno. Clark, Mgr.		10.11
		Insurance fund		674.07
		Federation dues		62.50
		Undivided balance		7.30
		Net Worth		
		Capital stock paid in	$400.00	
		Less loss and gain	45.00	
				355.00
	$1,272.50			$1,272.50

December 1

(17) Received in cash $40.00 from 40 new members, as per the minutes of the Nov. 30 meeting of the board of directors.

December 2

(18) Paid John Clark, manager, commission on shipment No. 112, check No. 111, $10.11.

December 5

(19) Received from C. & N. W. Ry. $25.75 in settlement of claim of November 7.

December 6

(20) Paid Stephen Gladstone, attorney's fees for collecting claim of Nov. 7, check No. 112, $3.00.

(21) Borrowed at the State Bank on 3 months' note at 7 percent, $100.00 to cover overdraft.

December 9

(22) Paid Sinclair Oil Co., for 10 gals. gasoline, check No. 113, $2.00.

December 15

(23) Bought of J. Andrews, retiring member, capital stock certificate No. 24, check No. 114, $5.00.

(24) Paid state federation dues for 1920, 50c on 125 cars, check No. 115, $62.50.

Fiscal Year Adjustments

(25) The board of directors voted to charge off depreciation on the equipment estimated at $50.00 for the year. (This amount will be credited to the yard and office equipment account and debited to the loss and gain account.)

(26) The credits in the insurance fund account at this point exceed the debits by $696.82. The board of directors, it is assumed, decided to carry forward only $500 in this account. Hence the excess of $196.82 will be transferred to loss and gain by debiting the former account and crediting the latter.

(27) The board of directors also decided to close the credit balance of $7.30 in the undivided balance account to loss and gain. Debit undivided balance account and credit loss and gain.

Had the credit balances in the two above instances been in excess of the needs of the business, the directors might have voted to refund the excess to the shippers as a patronage dividend. Such refunds should be debited to the account or accounts, the excess in which is thus distributed, or, preferably, first credited to Indebtedness when the refund is decided upon by the directors and, subsequently when paid, debited to indebtedness.

Distribution of Net Income

The loss and gain account at this point shows a credit balance of $147.12 which represents the excess of all deductions and income over all expenses incurred. As profits can be distributed legally only by action of the board of directors, it is assumed the board has voted to carry the balance of $147.12 to surplus.

(28) In accordance with the above action of the board of directors debit loss and gain account with the balance of $147.12 and credit same to net worth.

All columns should again be totaled as was done at the end of November. As this marks the end of the fiscal year, the smaller side of each account should be deducted from the larger and only the balance carried forward to the new fiscal year.

Annual Report

Suggestions for the preparation of the annual report will be found on pages 171 to 174, where statements based on the illustrative figures in the accompanying cash journal and shipment summary record will be found.

January 2, 1922

(29) Bill Adams came to the office and stated that he had been overcharged in the settlement made for shipment No. 111. A recalculation of his expenses, which appear on the prorating sheet (fig. 3) shows the overcharge to be 71 cents. This amount is paid to Mr. Adams by check No. 116. Debit undivided balance account.